Gisman

Aids to Navigation

Catalogue

Photo ECN / SEM-REV

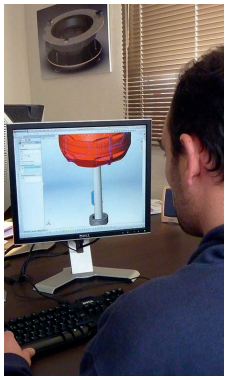
Gisman
Aids to Navigation

Over 150 years of expertise in Marine Aids to Navigation

- **Specializing in Marine Aids to Navigation, GISMAN issues from the French company BBT, known as the world leading company for lighthouse and lens construction at the beginning of the 20th century.**
- **In 2001, GISMAN joined OCEA SA, a French group specializing in aluminium shipbuilding with €60 million turnover in 2012 and 240 employees.**
- **GISMAN is an Industrial Member of the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) for more than 30 years, and is certified according to ISO 9001: 2008 quality standards.**

An overall solution to servicing the Marine Industry

- Surveys according to IALA recommendations
- Review of Aids to Navigation at a national level
- Strategic work plans
- Tailored design
- Installation
- Commissioning
- Training
- Maintenance
- Polyethylene buoys
- Steel buoys and elastic beacons
- Mooring buoys
- LED lanterns
- Leading and sector lights
- Rotating beacons and lighthouses equipment
- Control and monitoring systems
- Radio Aids (RACON, AIS)
- Support structures and towers
- OCEA aluminium workboats



Major references all around the world

- National Authorities
- Port Authorities
- International Contractors
- Mining, Oil & Gas Industry

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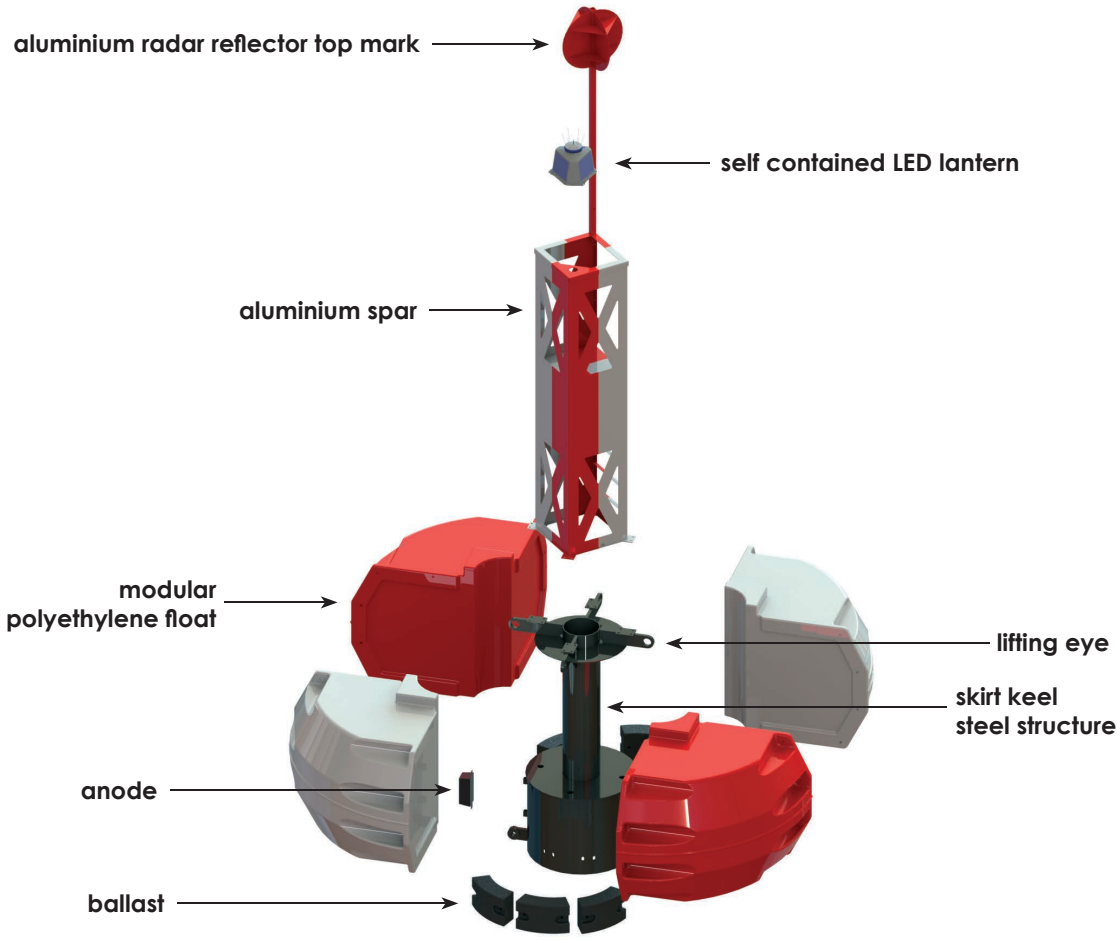
Polyethylene buoys
GBM-3000

Diameter: 3m, with adjustable float volume

The modular buoy GBM-3000 is intended for the beaconing of exposed sites.

- 3 different float volumes: 7.5, 10 or 12m^3
- 4 polyethylene quarter floats, with standard wall thickness 12mm (15 and 18mm available upon request), with colour stained in the mass, UV-stabilized and filled with polystyrene foam
- High Visibility Polyethylene (HVPE) or Aluminium (ALU) spar
- Steel structure type skirt keel, short or long ballasted tail, in painted or galvanized steel



	GBM-3000-7.5	GBM-3000-10	GBM-3000-12
Float diameter (m)	3	3	3
Float volume (m^3)	7.5	10	12
Float filling	polystyrene foam	polystyrene foam	polystyrene foam
Reserve buoyancy (m^3)	5.2 to 5.9	7.6 to 8.3	9.5 to 10.2
Focal plane (m)	4.2 to 5.7	4.5 to 6	6.2
Draught (m)	1.2 to 4.3	1.2 to 4.3	1.2 to 4.3
Overall height (m)	6.4 to 10.2	6.8 to 11.6	8.8 to 11.9
Ballast (t)	0.52 or 1	0.52 or 1	0.52 or 1
Total weight (t)	1.6 to 2.3	1.7 to 2.4	1.8 to 2.5

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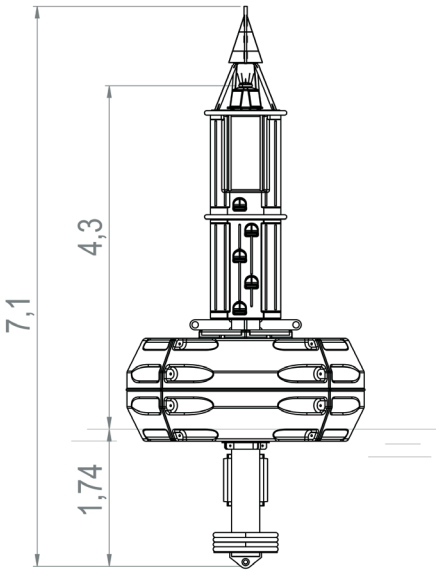
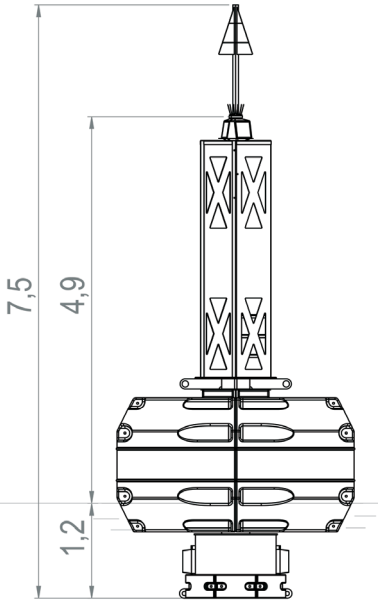
With an innovative modular design, the GBM-3000 is able to match all site conditions and client requirements.

Option matrix

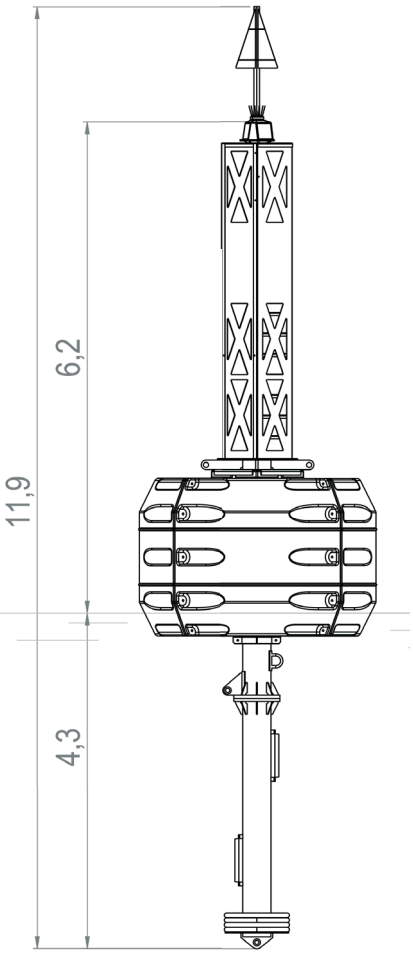
3 float volumes	3 types of spar	3 types of steel structure
7.5 m³	High Visibility Polyethylene: 2.7m high	Skirt Keel
10 m³	Aluminium: 3m high	Short Ballasted Tail
12 m³	Aluminium: 4m high	Long Ballasted Tail



GBM-3000-7.5
with 7.5m³ float,
HVPE spar (2.7m high)
and short ballasted tail
steel structure



GBM-3000-10
with 10m³ float,
ALU spar (3m high)
and skirt keel
steel structure



GBM-3000-12
with 12m³ float,
ALU spar (4m high)
and long ballasted tail
steel structure

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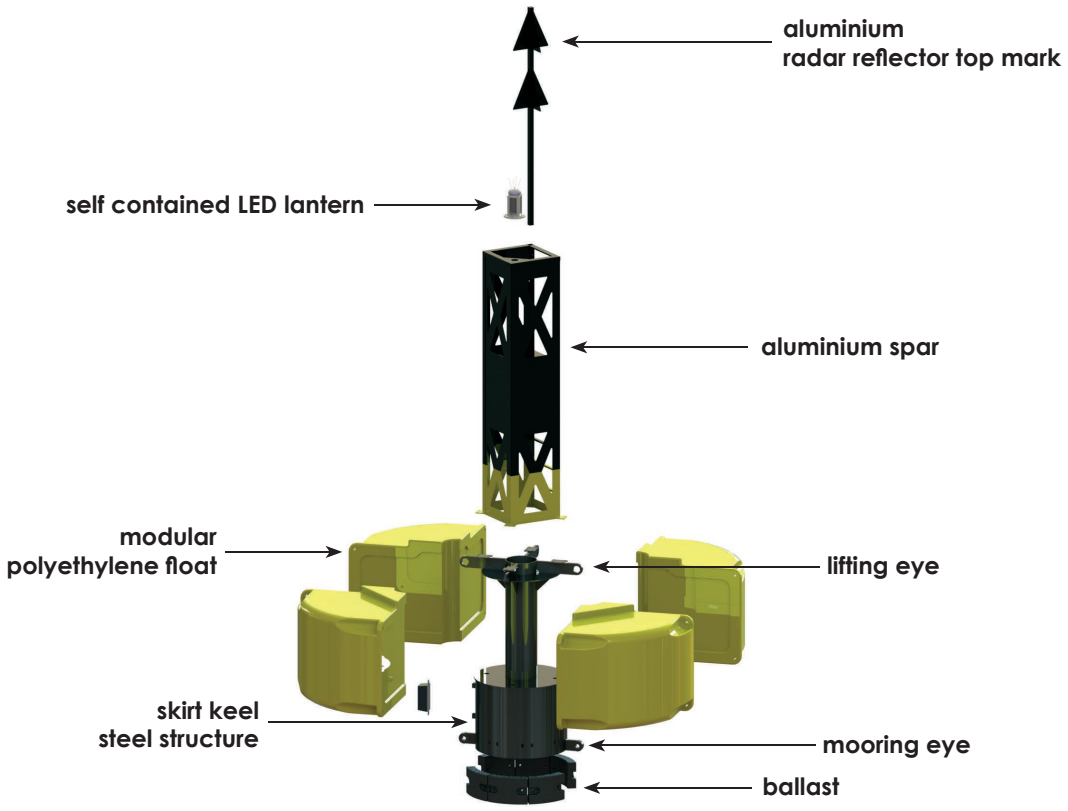
POLYETHYLENE BUOYS
GBM-2500

Diameter: 2.5m
Volume: 5.25m³

The modular buoy GBM-2500 is intended for the beaconing of semi-exposed sites.

- 4 polyethylene quarter floats, with standard wall thickness 10mm (13mm available upon request), with colour stained in the mass, UV-stabilized and filled with polystyrene foam
- High Visibility Polyethylene (HVPE) or Aluminium (ALU) spar
- Steel structure type skirt keel, short or long ballasted tail, in painted or galvanized steel

	GBM-2500
Float diameter (m)	2.5
Float volume (m³)	5.25
Float filling	polystyrene foam
Reserve buoyancy (m³)	3.6 to 4
Focal plane (m)	3.9 to 5.4
Draught (m)	1.1 to 2.1
Overall height (m)	6.1 to 8.6
Ballast (kg)	390 or 520
Total weight (t)	1.2 to 1.6



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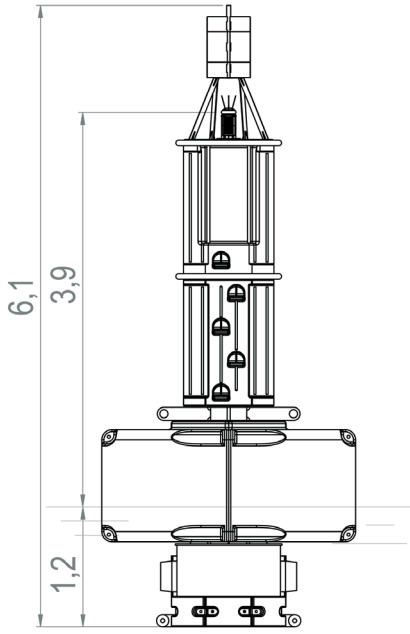
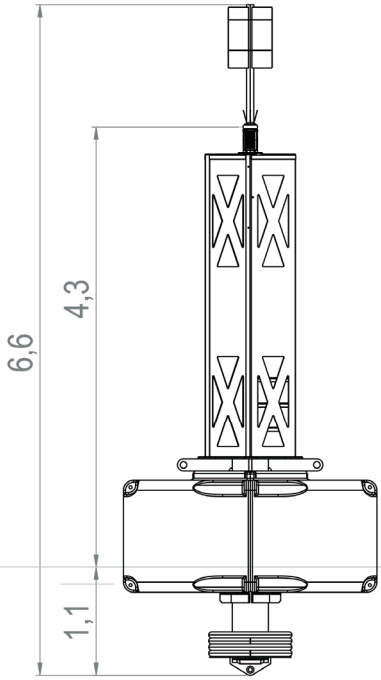
With an innovative modular design, the GBM-2500 is able to match various site conditions and client requirements.

Option matrix

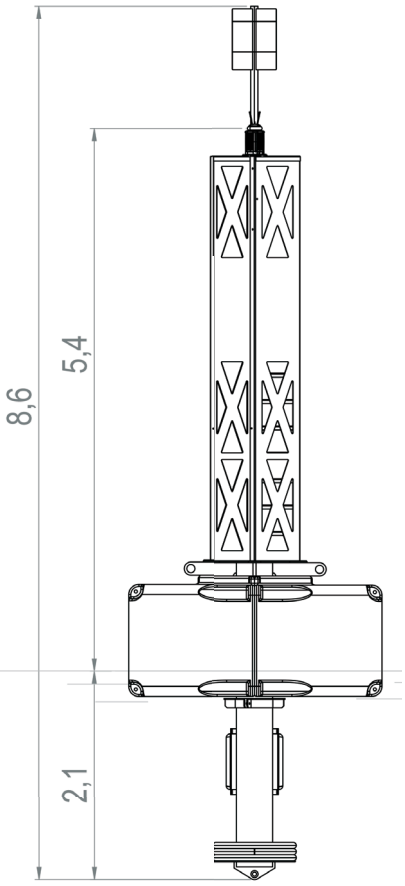
3 types of spar	3 types of steel structure
High Visibility Polyethylene: 2.7m high	Skirt Keel
Aluminium: 3m high	Short Ballasted Tail
Aluminium: 4m high	Long Ballasted Tail



GBM-2500 with HVPE spar (2.7m high) and skirt keel steel structure



GBM-2500 with ALU spar (3m high) and short ballasted tail steel structure



GBM-2500 with ALU spar (4m high) and long ballasted tail steel structure

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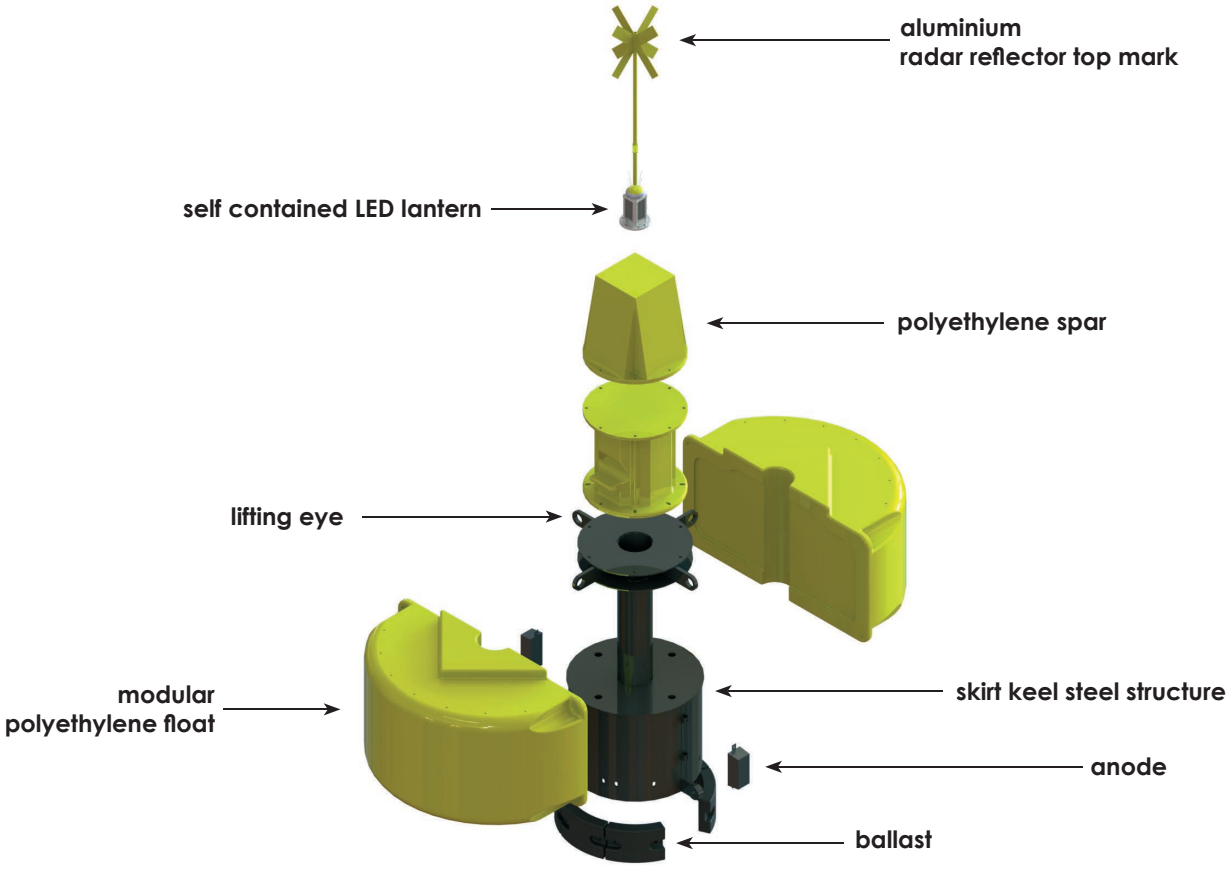
POLYETHYLENE BUOYS
GBM-2000

Diameter: 2m
Volume: 3.1m³

The modular buoy GBM-2000 is intended for the beaconing of semi-exposed and sheltered sites.

- 2 polyethylene half floats, with standard wall thickness 10mm (13mm available upon request), with colour stained in the mass, UV-stabilized and filled with polystyrene foam
- Polyethylene (PE), High Visibility Polyethylene (HVPE) or Aluminium (ALU) spar
- Steel structure type skirt keel, short or long ballasted tail, in painted or galvanized steel

	GBM-2000
Float diameter (m)	2
Float volume (m³)	3.1
Float filling	polystyrene foam
Reserve buoyancy (m³)	1.9 to 2
Focal plane (mm)	2.5 to 4.2
Draught (mm)	1.2 to 2.2
Overall height (mm)	4.6 to 7.9
Ballast (kg)	260 or 350
Total weight (t)	0.78 to 1.2



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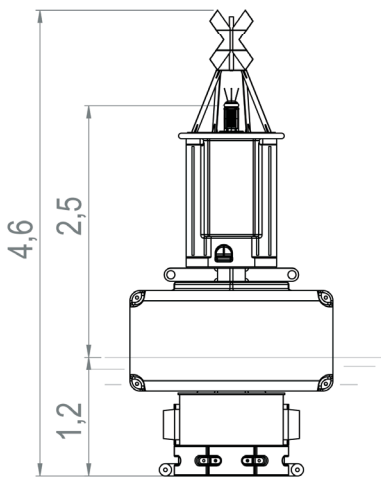
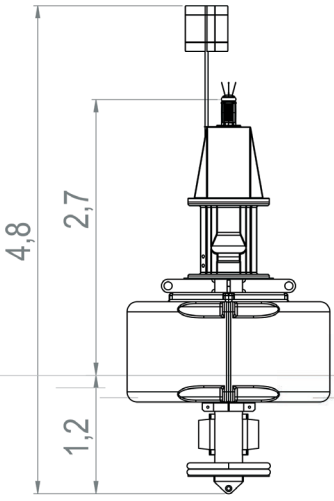
With an innovative modular design, the GBM-2000 is able to match various site conditions and client requirements.

Option matrix

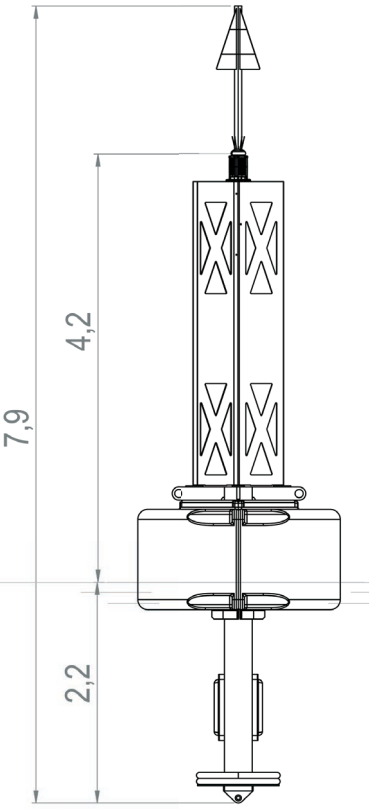
4 types of spar	3 types of steel structure
High Visibility Polyethylene: 1.3m high	Skirt Keel
Polyethylene: 1.5m high	Short Ballasted Tail
Aluminium: 2m high	Long Ballasted Tail
Aluminium: 3m high	



GBM-2000
with HVPE spar (1.3m high)
and skirt keel steel structure



GBM-2000
with PE spar (1.5m high)
and short ballasted tail
steel structure



GBM-2000
with ALU spar (3m high)
and long ballasted
tail steel structure

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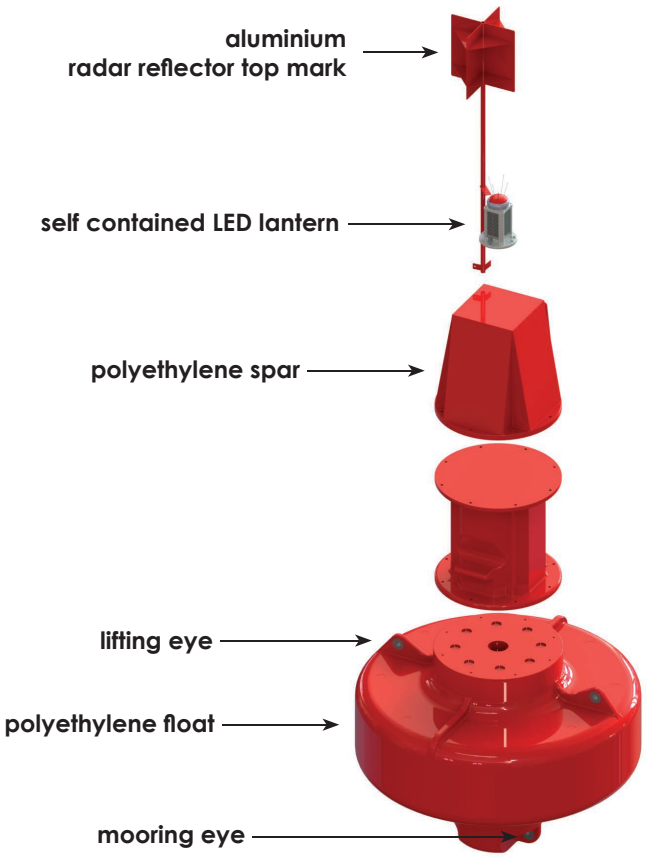
Polyethylene buoys
GBP-1800

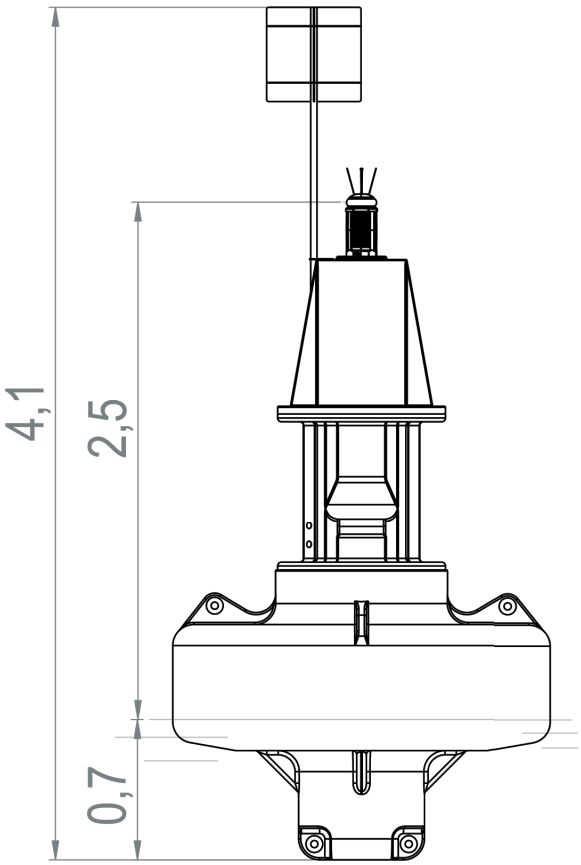
Diameter: 1.8m
Volume: 1.7m³

The proximity buoy GBP-1800 is intended for the beaconing of sheltered sites. It is an ideal equipment for proximity beaconing.

- Polyethylene float, 12mm wall thickness, with colour stained in the mass, UV-stabilized and filled with polystyrene foam
- Polyethylene spar
- Two lifting eyes and two mooring eyes

	GBP-1800
Float diameter (m)	1.8
Float volume (m³)	1.7
Float filling	polystyrene foam
Reserve buoyancy (m³)	1.3
Focal plane (m)	2.5
Draught (m)	0.7
Overall height (m)	4.1
Ballast (kg)	270
Total weight (kg)	430





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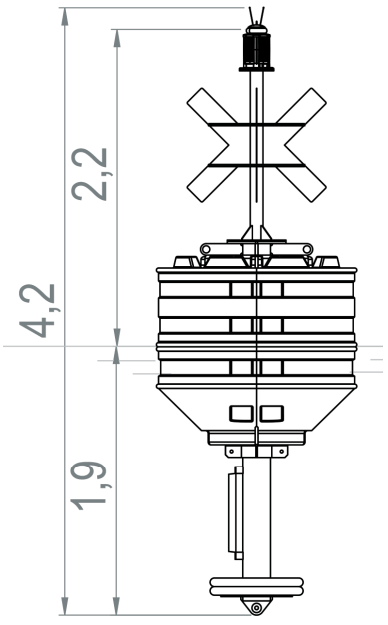
POLYETHYLENE BUOYS
GBM-1400

Diameter: 1.4m
Volume: 1.5m³

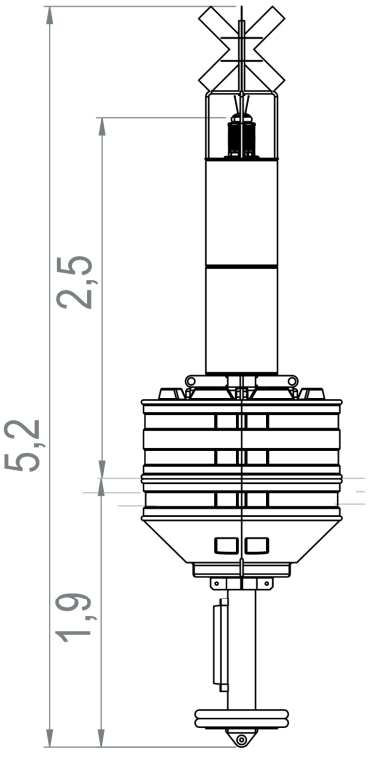
The modular buoy GBM-1400 offers a reinforced stability with a ballasted tail.

- 4 polyethylene quarter floats, 7.5mm wall thickness, with colour stained in the mass, UV-stabilized and filled with polystyrene foam
- Available with polyethylene (PE), steel or aluminium spar
- Painted or galvanized steel structure

	with steel spar	with PE spar
Float diameter (m)	1.4	1.4
Float volume (m³)	1.5	1.5
Float filling	polystyrene foam	polystyrene foam
Reserve buoyancy (m³)	0.9	0.9
Focal plane (m)	2.2	2.5
Draught (m)	1.9	1.9
Overall height (m)	4.2	5.2
Ballast (kg)	260	260
Total weight (kg)	582	575



GBM-1400-1.5
with steel spar



GBM-1400-1.5
with polyethylene spar

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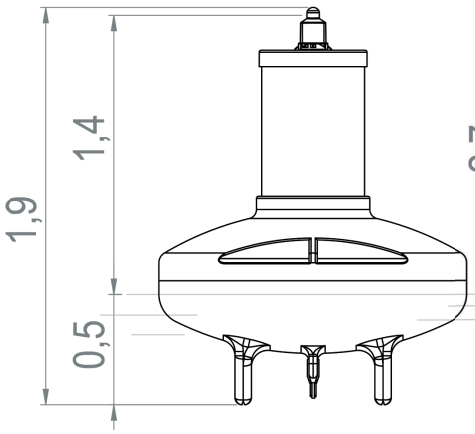
Polyethylene buoys
GBP-1500

Diameter: 1.5m
Volume: 0.8m³

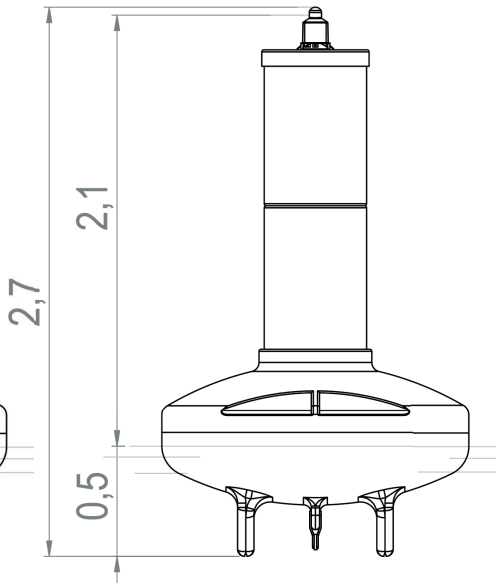
The fast current buoy GBP-1500 is intended for the beaconing of shallow waters, channel edges, rivers and fast current zones.

- Polyethylene float with standard wall thickness 8.5mm (10.5mm available upon request), with colour stained in the mass, UV-stabilized and filled with polystyrene foam
- Polyethylene spar
- Twin keel float for fast current zones
- Two-position mooring eye
- Two lifting eyes
- Equipped with top mark for Special Mark

	single spar	double spar
Float diameter (m)	1.5	1.5
Float volume (m³)	0.8	0.8
Float filling	polystyrene	polystyrene
Reserve buoyancy (m³)	0.6	0.6
Focal plane (m)	1.4	2.1
Draught (m)	0.5	0.5
Overall height (m)	1.9	2.7
Ballast (kg)	85	85
Total weight (kg)	167	180



GBP-1500 with single spar



GBP-1500 with double spar

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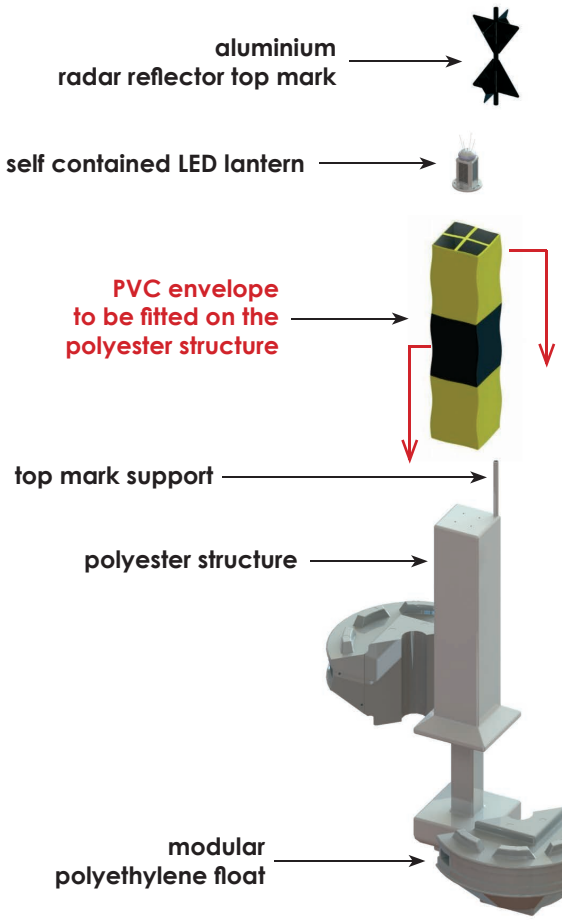
Polyethylene buoys
GBM-1400

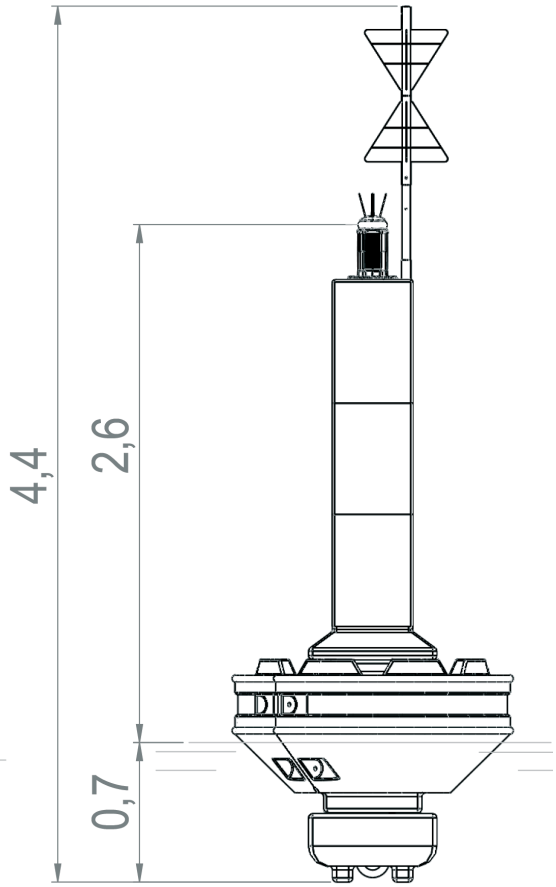
Diameter: 1.4m
Volume: 0.7m³

The GBM-1400 buoy is intended for the temporary beaconing. It can be quickly deployed with a PVC envelope of the required day mark.

- 2 polyethylene half floats (grey colour)
- Main structure in polyester
- 10 PVC envelopes (day marks) available: cardinal, lateral, special, safe water, isolated danger, wreck

	GBM-1400-0.7
Float diameter (m)	1.4
Float volume (m³)	0.7
Float filling	polystyrene foam
Reserve buoyancy (m³)	0.3
Focal plane (m)	2.6
Draught (m)	0.7
Overall height (m)	4.4
Ballast (kg)	170
Total weight (kg)	395





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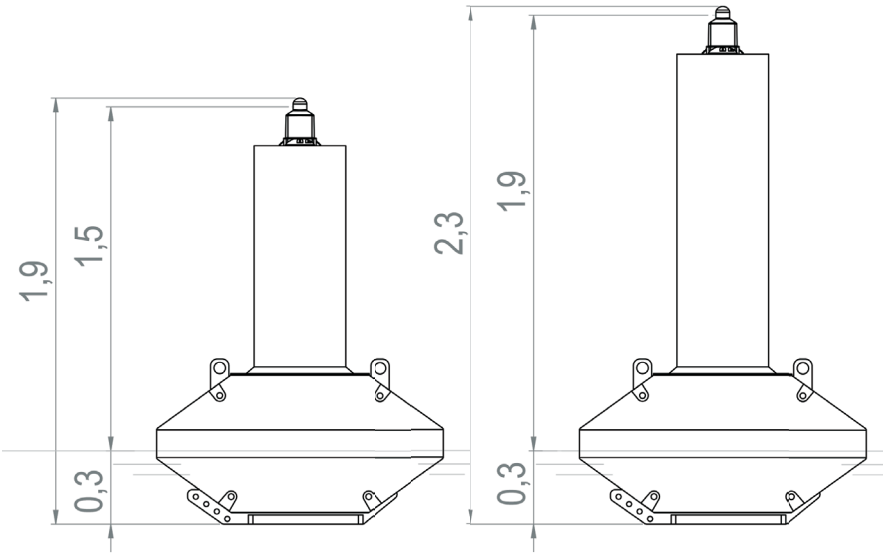
Polyethylene buoys
GBR-1250

Diameter: 1.25m
Volume: 0.4m³

The proximity buoy GBR-1250 is intended for river navigation and proximity beaconing in harbours.

- 2 polyethylene half floats, 7mm wall thickness, with colour stained in the mass and UV-stabilized
- 2 lifting eyes
- 2 heights of polyethylene spar available: 1m and 1.4m
- Ballasted drift in galvanized steel, for strong current
- Equipped with top mark for Special Mark

	1m spar	1.4m spar
Float diameter (m)	1.25	1.25
Float volume (m³)	0.4	0.4
Float filling (optional)	polystyrene	polystyrene
Reserve buoyancy (m³)	0.3	0.3
Focal plane (m)	1.5	1.9
Draught (m)	0.3	0.3
Overall height (m)	1.9	2.3
Total weight (kg)	92	95



GBR-1250 with 1m spar

GBR-1250 with 1.4m spar

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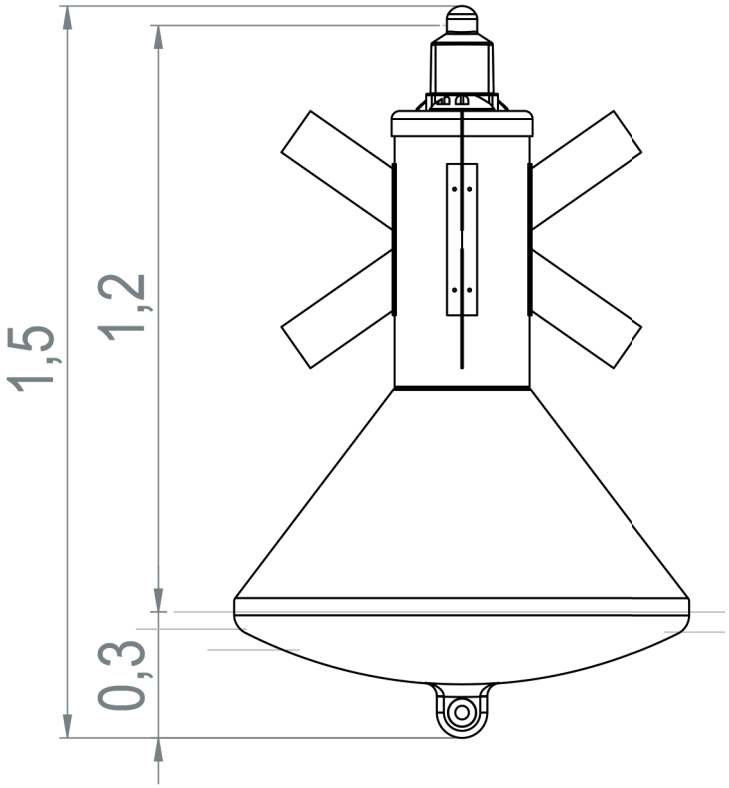
POLYETHYLENE BUOYS
GBP-900

Diameter: 0.9m
Volume: 0.2m³

The proximity buoy GBP-900 is intended for the beaconing of protected areas.

- Polyethylene float, 7mm wall thickness, with colour stained in the mass and UV-stabilized
- Polyethylene spar
- Equipped with top mark for Special Mark

	GBP-900
Float diameter (m)	0.9
Float volume (m³)	0.2
Float filling (optional)	polystyrene foam
Reserve buoyancy (m³)	0.18
Focal plane (m)	1.2
Draught (m)	0.3
Overall height (m)	1.5
Total weight (kg)	19



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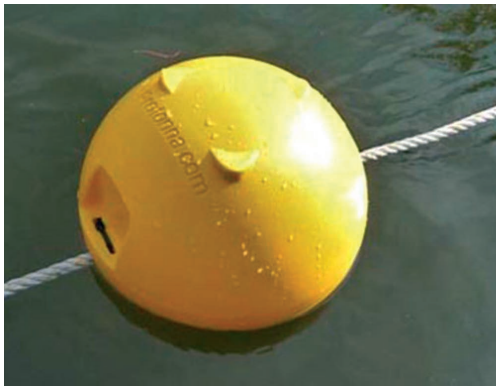
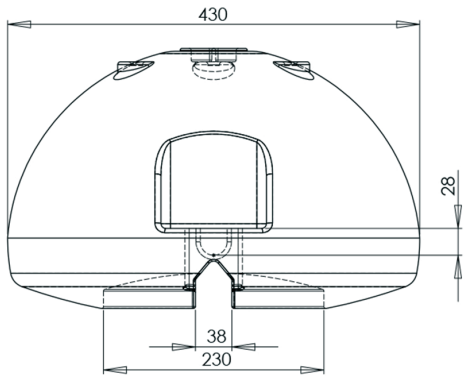
Protonna

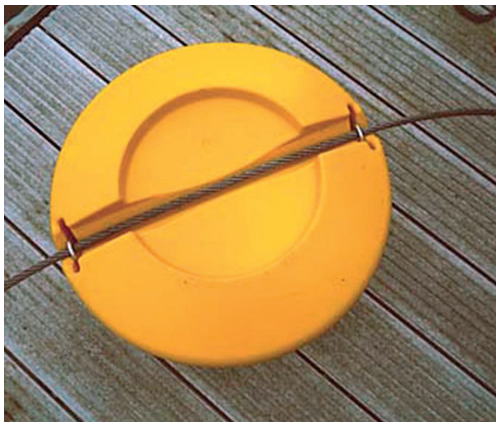
The multi-purpose buoy BAL-430 is intended for the marking of specific areas in ports, marinas, rivers or for aquaculture applications.

- Polyethylene float with colour stained in the mass and UV-stabilized
- Used in combination with a rope or a stainless steel wire, to mark a line or prevent access
- Diameter of the rope/wire: 6 to 38mm



	BAL-430
Diameter (m)	0.43
Float volume (m^3)	0.025
Overall height (m)	0.28
Weight (kg)	2.2





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POLYETHYLENE BUOYS
PB-500 / PB-750 / PB-950

Multi-purpose buoys

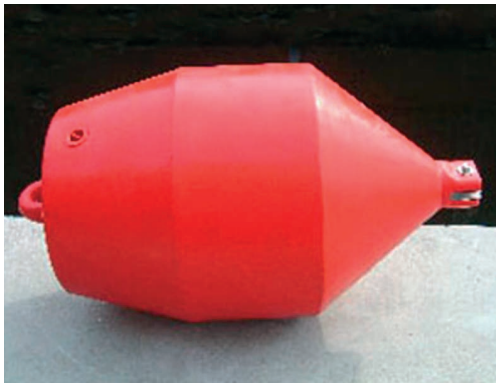
Protonna

These multi-purpose rigid buoys are intended for anchor marking in ports, marinas or rivers.

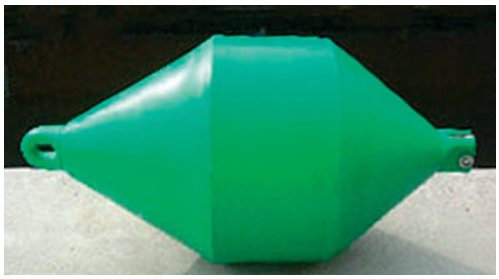
- Polyethylene float with colour stained in the mass and UV-stabilized
- Used in combination with a 25-26mm chain
- Minimum breaking force of the lifting eye: 1200kg

Options

- Internal 200mm radar reflector
- 2NM self contained LED lantern for PB-950



PB-750



PB-750

PB-500

PB-950

	PB-500	PB-750	PB-950
Diameter (m)	0.5	0.75	0.95
Float volume (m^3)	0.16	0.322 to 0.356	0.5
Overall height (m)	1.18	1.42 to 1.58	1.3 to 1.5
Total weight (kg)	12	22	65
Anchor weight (kg)	20	50	-

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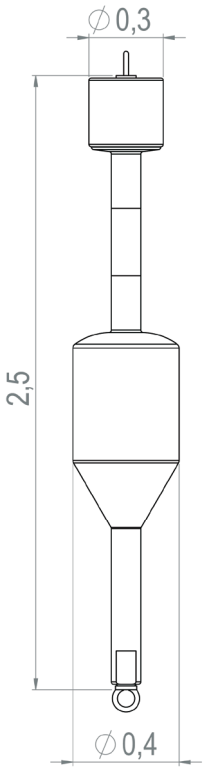
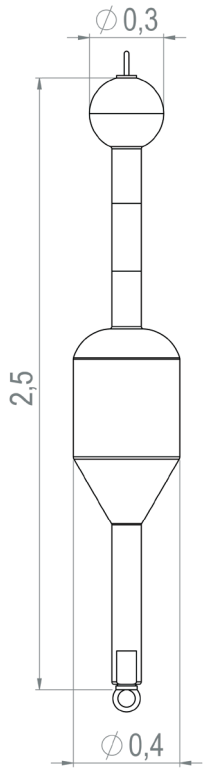
Protonna

The spar buoy PSB-430 offers a cost effective solution for the beaconing of smaller ports, marinas, rivers and aquaculture applications.

- Polyethylene float with colour stained in the mass and UV-stabilized
- Used for inland water marking type recreational crafts (secondary markings) or for special areas marking: no entry, water ski area, speedboat areas…

	PSB-430
Diameter (m)	0.4
Float volume (m^3)	0.1
Overall height (m)	2.5
Buoy weight (kg)	11.4 to 12.4
Necessary anchor weight (kg)	20





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Protonna

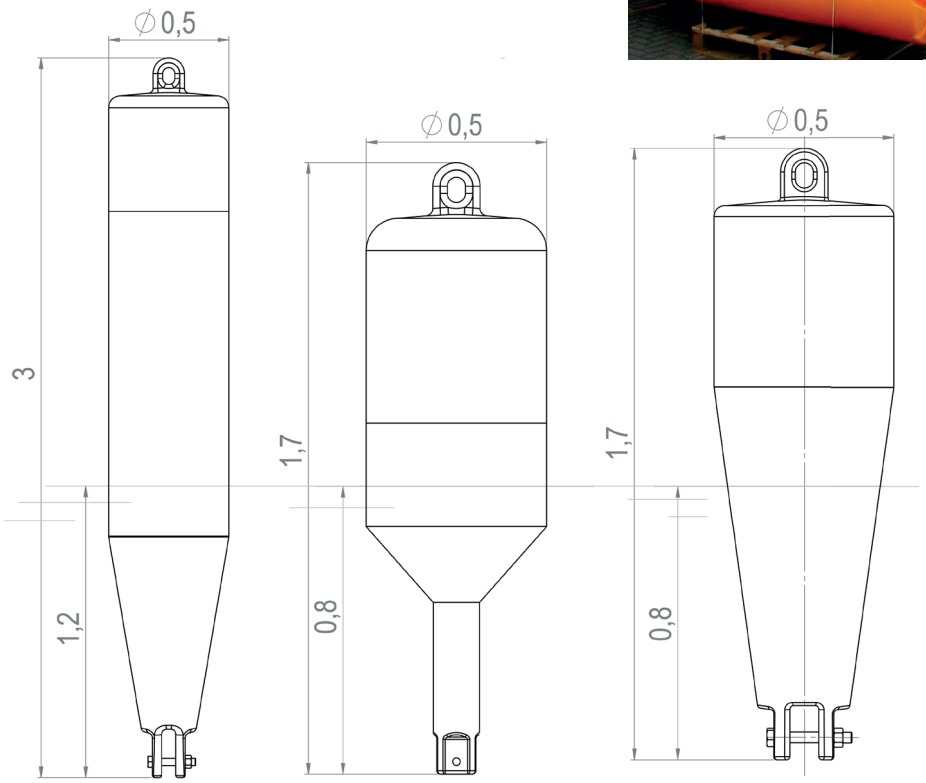
The spar buoy PSB-500 offers a cost effective solution for the beaconing of smaller ports, marinas, rivers and aquaculture applications.

- Polyethylene float with colour stained in the mass and UV-stabilized
- Used for inland water marking type recreational crafts (secondary markings) or for special areas marking: no entry, water ski area, speedboat areas…

Options

- Internal 200mm radar reflector
- 2NM self contained LED lantern
- Retro reflecting strips for lateral marker buoys

	PSB-500
Diameter (m)	0.5
Overall height (m)	1.7 or 3
Current speed (knots)	max. 4
Buoy weight (kg)	18 to 40
Necessary anchor weight (kg)	30 to 120



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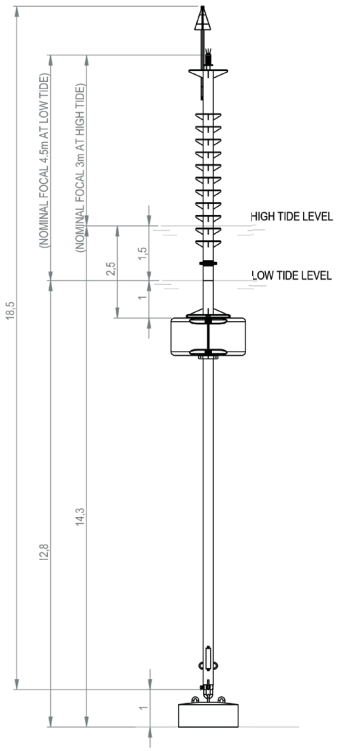
Elastic beacons

For mooring depth sites up to 50m

With a submerged float from 2.3 to 5.25m³ volume, GISMAN elastic beacons offer a watch swing radius near to 0. These equipment require low maintenance.

- Custom-made for each site conditions
- Tubular pillar divided into watertight sections assembled by bolted flanges, and hinged on a sinker by a special high duty shackle
- Polyethylene float (13mm wall thickness) filled with polystyrene foam
- Cathodic protection against corrosion
- Low maintenance (no chain)
- Positioning with great accuracy
- Watch swing radius near to 0
- No roll (although it may lean over of some degrees under the action of strong winds and currents)
- 360° steps for an easy access to the working platform (platform in option)

Float diameter (m)	from 1.4 to 2.5
Float volume (m³)	from 2.3 to 5.25
Height and draught	according to depth and site conditions
Focal plane (m)	up to 10



GISMAN elastic beacon with 3.1m³ float

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Diameter: 1.8 to 3m
Skirt keel or tail tube

GISMAN can provide different types of steel buoys, with skirt keel or tail tube, from 1.8 to 3m float diameter, to be deployed in harbours, rivers or in open sea. Specific requirements can be matched with custom-made solutions.

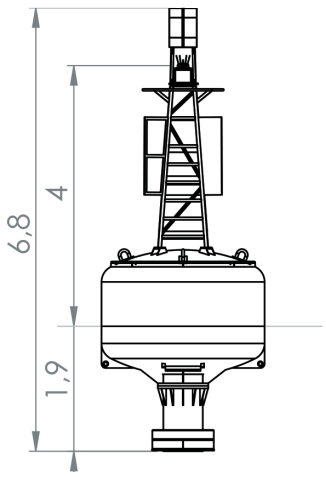
- Steel float and superstructure
- Submerged part provided with cathodic protection composed of zinc - aluminium – indium anodes

Options

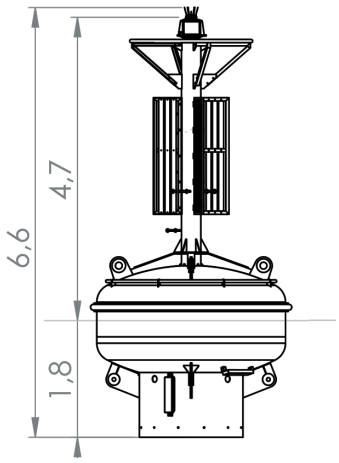
- Wings to increase day mark
- Float filling with polyurethane foam
- Rubber fender
- Inspection man-hole

Configurations available

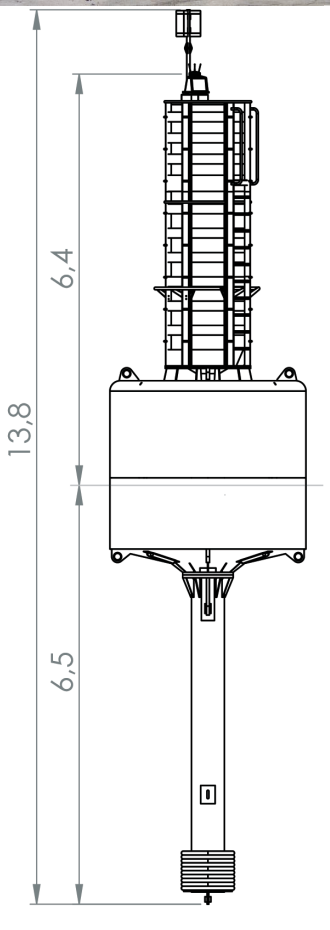
	SB-2500	SB-2900	SB-3000
Diameter (m)	2.5	2.9	3
Float volume (m^3)	7,5	9	18
Reserve buoyancy (m^3)	> 4,5	> 5	> 10
Focal plane (m)	4	4.7	6.4
Draught (m)	1.9	1.8	6.5
Overall height (m)	6.8	6.6	13.8
Ballast (t)	0.8	0.8	1.3
Weight (t)	3	4	7.6



Steel buoy type SB-2500



Steel buoy type SB-2900



Steel buoy type SB-3000

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MOORING BUOYS

From 0.8 to 10m³ float

GISMAN mooring buoys are able to match a large range of requirements. The different floats available from 0.8 to 10m³ can provide buoyancy from 12 to 72 kg/cm.

- Custom-made solution according to client requirements
- Polyethylene modular float with colour stained in the mass, UV-stabilized and filled with polystyrene foam
- Central structure in painted and/or galvanized steel
- Available with D-link, shackle or static «T»

	MB-1400	MB-2000	MB-2500	MB-3000-7.5	MB-3000-10
Float diameter (m)	1.4	2	2.5	3	3
Float volume (m³)	0.8	3.1	5.25	7.5	10
Float filling	polystyrene	polystyrene	polystyrene	polystyrene	polystyrene
Free board (m)	0.4	0.8	0.9	1.13	1.5
Buoyancy (kg/cm)	12	31	50	72	72
SWL (t)	12	20	40	40	40
Draught (m)	0.7	1.1 to 1.4	1.5	1.5 or 1.6	1.4
Overal height (m)	1.3	2.6 to 3	3.2 to 3.3	3.3 or 3.5	3.7 or 3.8
Weight (t)	0.15	0.45 to 0.5	0.89 to 0.94	1.2	1.2
D-link	yes	yes	yes	no	no
Shackle	no	yes	yes	yes	yes
Static «T»	no	yes	yes	yes	yes

MB-1400 with D-link

MB-2000 with D-link

MB-2500 with D-link

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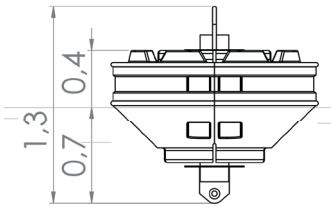
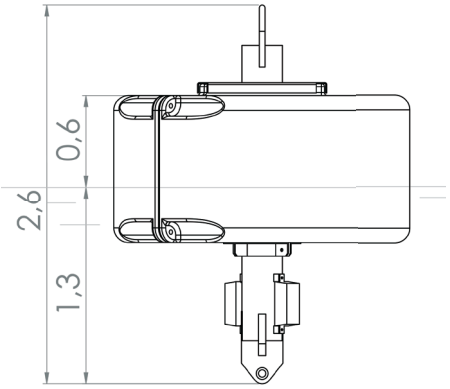
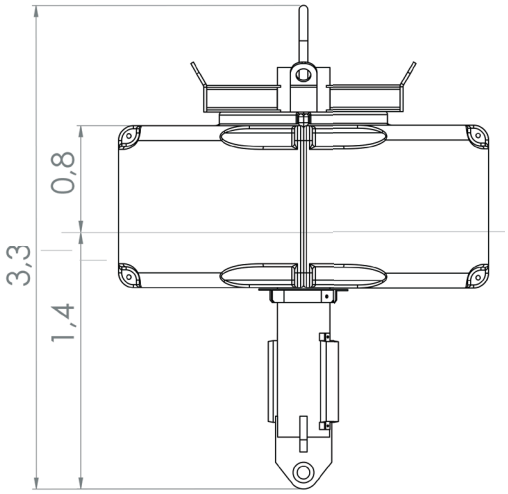
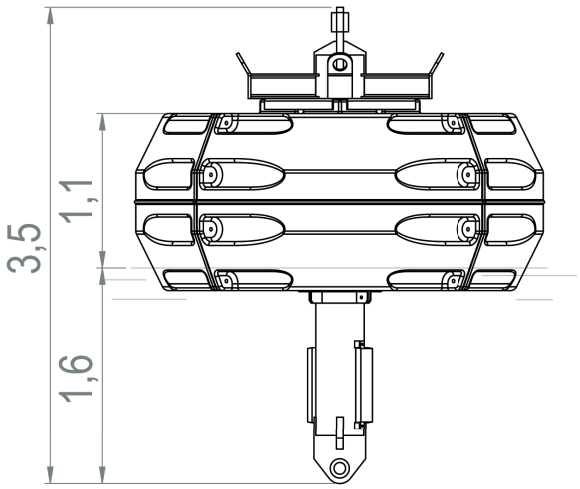


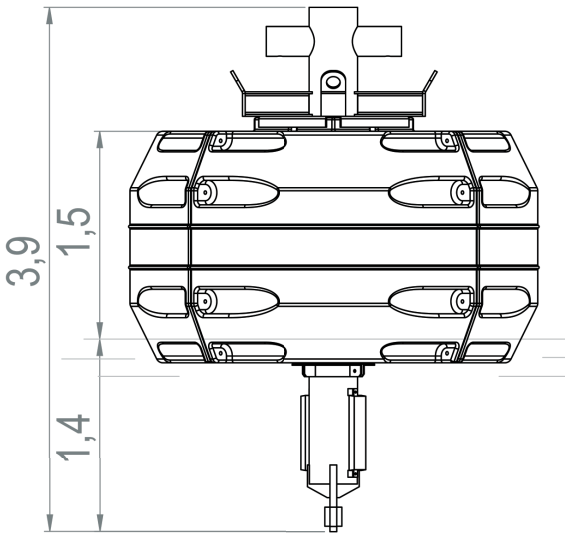




MB-3000 7.5m³ with shackle

MB-3000 10m³ with static «T»





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Data buoys and loggers

With a wide range of floats and spars, GISMAN is able to offer custom-made solutions with different types of electronic devices and ocean-weather sensors to be fitted on buoys.

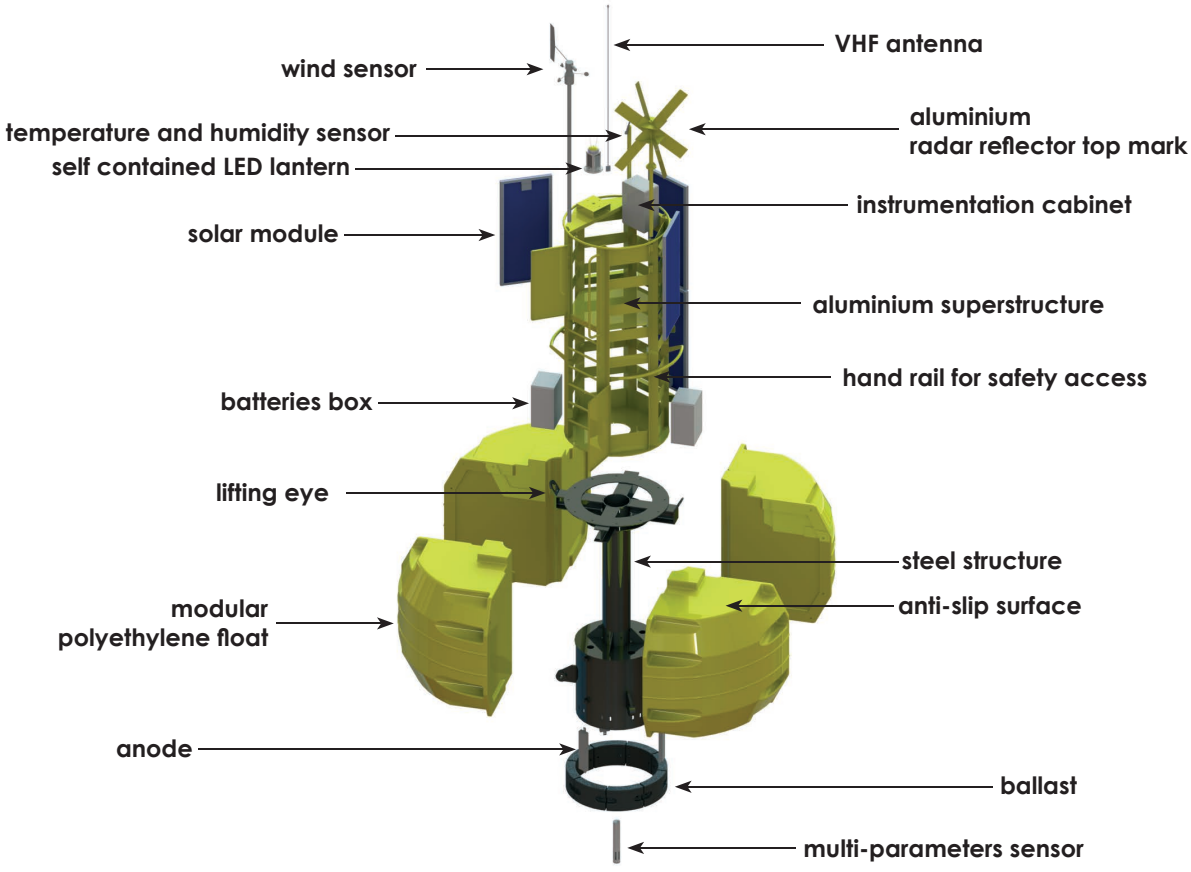
- Modular polyethylene float
- Aluminium spar with working platform
- Steel ballast support providing very efficient stability

Sensors available

- Wind speed and direction (ultrasonic or mechanical)
- Humidity
- Air and water temperature
- Pressure
- Rain and precipitation
- Turbidity
- Gyroscope, accelerometer, magnetometer
- Solar generator to power the sensors
- GPS system, AIS

All data are centralized and stored in a data logger and can be transmitted to a base station by GSM, VHF or satellite.

Example of GISMAN data buoy



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LED MARINE BEACONS
VEGA VLB-2

Self contained lantern
1 to 3NM @ 0.74T

The VLB-2 is a high capacity LED marine beacon designed to provide a range up to 3NM and a long battery autonomy in high latitude applications.

- Vertical divergence > 7°
- Colours meet IALA chromaticity requirements
- LEDs temperature monitored for control intensity
- Automatic Schmidt-Clausen intensity correction
- Easy programming (TVIR programmer or IRDA interface)
- Multiple effective intensity settings
- Programmable flash characters: 246 + 1 custom
- Day/night transition level settings
- Low battery voltage cut out
- Stainless steel centre spike
- Ability to replace batteries

Options

- Available in standalone unit (SA) for external power supply
- VLB-2E model for range up to 3NM
- Internal GPS sync system
- Mounting on 200mm PCD

	Standard Size (SS)	Extended Size (ES)
Solar	3.2W	3.2W
Battery	9Ah	18Ah

Body / Base	UV stabilized nylon
Lens	Moulded acrylic PMMA
Watertightness	IP 68
Shock / Vibration	75g / 5g in all directions
Weight (with battery for SS and ES)	SA 0.3kg / SS 1.6kg / ES 2.7kg
Mounting	3 or 4-hole on 150mm PCD
Design life	12 years

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A solar calculator is available online to simulate VEGA lights battery autonomy according to configuration and location: www.solar.vega.co.nz (calculators menu).

GISMAN is the authorized distributor for VEGA products in many countries. For further details, please contact us.

Gisman
Aids to Navigation

LED MARINE BEACONS
VEGA VLB-67

Self contained lantern
2 to 5NM @ 0.74T

Vega

The VLB-67 offers high performance and a very low consumption to be used at high latitudes with high duty cycle applications.

- Vertical divergence > 7°
- Colours meet IALA chromaticity requirements
- LEDs temperature monitored for control intensity
- Automatic Schmidt-Clausen intensity correction
- Easy programming (TVIR programmer or IRDA interface)
- Multiple effective intensity settings
- Programmable flash characters: 246 + 1 custom
- Day/night transition level settings
- Low battery voltage cut out
- Stainless steel bird spikes
- Ability to replace batteries

Standalone Standard Large

Options

- Available in standalone unit (SA) for external power supply
- Internal GPS sync system
- Monitoring system with Mini VegaWeb
- Data port for connection to AIS unit

	Standard Size (SS)	Large Size (LS1 or LS2)
Solar	7.2W	16W
Battery	12Ah	12 or 24Ah

Body / Base	UV stabilized Nylon
Lens	Moulded acrylic PMMA
Watertightness	IP 68
Shock / Vibration	75g / 5g in all directions
Weight (with battery for SS and LS)	SA 1kg / SS 6kg / LS 11kg
Mounting	3 or 4-hole on 200mm PCD
Design life	12 years

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LED MARINE BEACONS
VEGA VLB-36

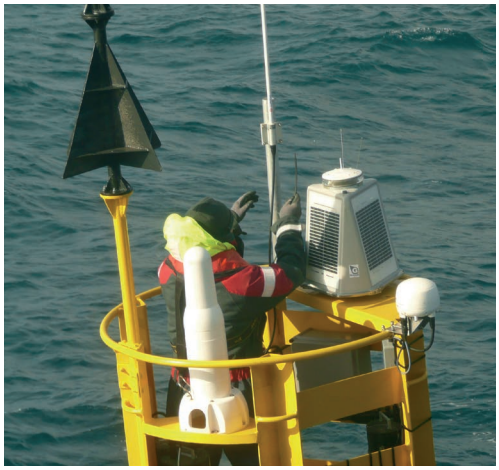
Self contained lantern
4 to 7NM @ 0.74T

The VLB-36 marine beacon uses an acrylic lens that maximizes the light capture from the LEDs.

- Vertical divergence: 7° or 10°
- 3 solar panels
- Colours meet IALA chromaticity requirements
- LEDs temperature monitored for control intensity
- Automatic Schmidt-Clausen intensity correction
- Easy programming with TVIR programmer
- Up to 15 programmable effective intensity settings
- Programmable flash characters: 246 + 1 custom
- 20 factory set custom characters
- Low battery voltage cut out
- Stainless steel bird spikes
- Ability to replace batteries

Options

- Available in standalone unit (SA) for external power supply
- Internal GPS sync system
- Monitoring system with Mini VegaWeb
- Output for connection to AIS unit



	S model	M model	XL model
Solar	7.8W	15W	30W
Battery	12Ah	12/18/35Ah	12/18/35Ah

Body / Base	UV stabilized ASA plastic
Lens	Acrylic
Watertightness	IP 68
Shock / Vibration	75g horiz / 35g vert. / 5g vib.
Weight (with battery)	S 8.4kg / M 11.1kg / XL 19.3kg
Mounting	3-hole on 200mm PCD
Design life	12 years

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A solar calculator is available online to simulate VEGA lights battery autonomy according to configuration and location: www.solar.vega.co.nz (calculators menu).

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LED MARINE BEACONS
VEGA VLB-44

Medium range beacon
6 to 14NM @ 0.74 T

The VLB-44 is a very high efficient beacon with an acrylic lens that maximises the light capture from the LEDs. Its low consumption allows to reduce the associated generator for solar supply.

- 3 vertical divergences available:
  - 10° for buoys
  - 5° for land/pole use
  - 2.5° for lighthouse
- 1 to 8 tiers of LEDs to provide a wide scope of ranges
- LEDs temperature monitored for control intensity
- Colours meet IALA chromaticity requirements
- Automatic Schmidt-Clausen intensity correction
- Easy programming with TVIR programmer
- Up to 15 programmable effective intensity settings
- Programmable flash characters: 246 + 1 custom
- 20 factory set custom characters
- Low battery voltage cut out
- Watertightness: IP 68
- Design life > 10 years

Options

- External GPS sync system using the Vega VSU-29 unit
- Monitoring system with VegaWeb
- Output for connection to AIS unit

No. of tiers	Vertical divergence 2.5° colour & night range	Vertical divergence 5° colour & night range	Vertical divergence 10° colour & night range
1	R9.3 – W9.6 – G9.3 – Y8.5	R8.4 – W8.5 – G8 – Y7.5	R7 – W7.4 – G7 – Y6.7
2	R10.5 – W11.1 – G10.7 – Y9.9	R9.6 – W9.6 – G9.0 – Y8.7	R8.6 – W8.4 – G8.5 – Y8
3	R11.5 – W12 - G11.7 – Y10.5	R10.5 – W10.5 – G10 – Y9.5	R9.5 – W9.3 – G9.3 – Y8,6
4	R12 – W12.5 – G12.3 – Y11.1	R11 – W11.1 – G10.9 – Y10	R10.2 – W9.9 – G9.9 – Y9,3
5	R12.6 – W12.8 – G12.6 – Y11.7	R11.5 – W11.7 – G11 – Y10.5	R10.5 – W10.2 – G10.2 – Y9.6
6	R12.8 – W13.2 – G13.1 – Y12	R12 – W12 – G11.5 – Y10.8	R11 – W10.7 – G10.5 – Y10
7	R13.2 – W13.5 – G13.5 – Y12.5	R12.3 – W12.5 – G11.6 – Y11.6	R11.4 – W11.1 – G10.8 – Y10.2
8	R13.5 – W14 – G13.7 – Y12.6	R12.5 – W12.7 – G12 – Y11.5	R11.5 – W11.4 – G11 – Y10.5

A selector is available online to confirm the beacon suitability according to vertical divergence, location, range, colour and flash character: www.solar.vega.co.nz (calculators menu).
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Complete solar lantern assembly

Assembly for fixed structures

The complete solar lantern assembly is modular to match a large range of intensity and autonomy requirements.

- Moulded box (several models available) which accomodates:
  - 1 or 2 watertight batteries
  - 1 monitoring system
- Solar panel: 20, 50 or 90Wp
- Various standalone LED lantern available such as: VEGA VLB-67, VLB-36 or VLB-44
- Range up to 14NM depending on the selected beacon
- Fully autonomous
- High resistance to corrosion
- Easy installation and maintenance

Options

- GPS sync system
- Monitoring system with Mini VegaWeb

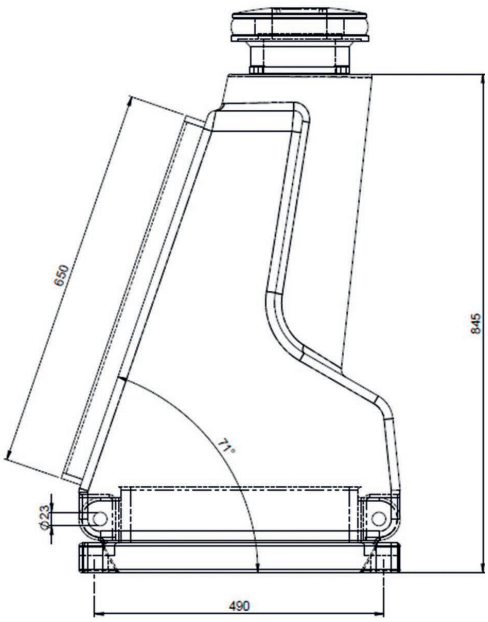
Specification subject to change or variation without notice - January 2014

Solarbox S1x54

Protonna

The Protonna Solarbox can be used on fixed structures. It is easy to install and has a perfect fit for various purposes: harbor lights, leading lights, etc.

- Polyethylene box (maintenance free)
- Opens in two directions, for an easy access to the batteries and solar regulator
- A wide range of LED lights can be fitted on the solar box (VEGA VLB-44, VLB-36, …)
- Available with solar modules from 40 to 130Wp
- Available with 2 or 3 batteries 110Ah/12V
- Weight: 20kg, without battery



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EXPLOSION PROOF LIGHT

GBLED-EEX
2 to 8NM @ 0.74T

This lantern has been specifically designed for operation in hazardous gas areas. It benefits from LED technology.

- Vertical divergence: 9°
- Operation in zone 1 + zone 2 Eex « d » Flameproof
- External power supply 12V
- 256 flash characters
- 4 adjustable intensity settings
- Stainless steel protective grill

Options

- GPS sync system
- Self contained lantern (2-3NM)

Body	Marine aluminium alloy
Lens	Borosilicate glass globe
Watertightness	IP 68
Weight	12kg
Mounting	4 holes on 116mm PCD
Design life	10 years

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LED MARINE BEACONS
VEGA VLB-92

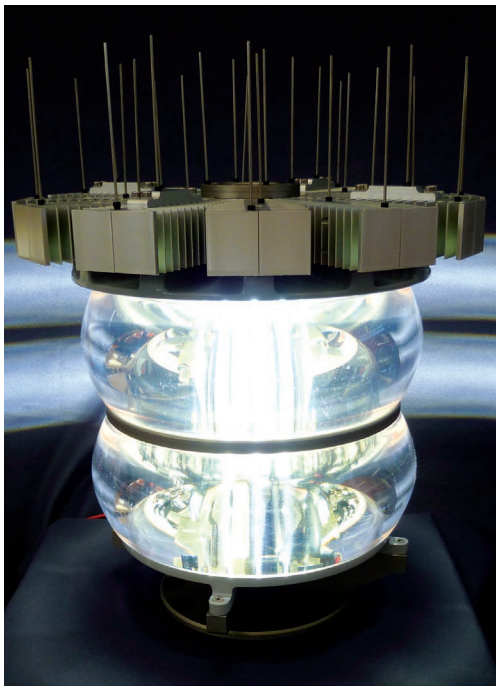
Long range beacon
15 to 20NM @ 0.74T

The VLB-92 Omni-Mega long range LED beacon is intended for applications requiring very high intensity and range.

- Custom-made solution according to client requirements
- 1 to 6 tiers can be used to obtain the required range and flash character of the application
- Vertical divergence: 3° to the 50% intensity level
- Heat sink performance to handle the heat dissipation from the LEDs
- Each lens layer incorporates 12 LED sources
- Colours meet IALA chromacity requirements: standard colours are white, red, and green
- Automatic Schmidt-Clausen intensity correction
- Easy programming (TVIR programmer or IRDA interface)
- Multiple effective intensity settings
- Programmable flash characters: 246 + 1 custom
- Multiple day/night transition level settings
- Programmable low battery voltage cut out
- Bird spikes

Options

- External GPS sync system using the Vega VSU-29 unit
- Monitoring system with Mini VegaWeb
- Data port for connection to AIS unit



Body / Heatsink	Anodised marine grade aluminium
Lens	Machined cast acrylic
Weight	29kg (1 tier) to 90kg (6 tiers)
Mounting	3 or 4-hole on 200mm PCD
Design life	15 years

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Aids to Navigation

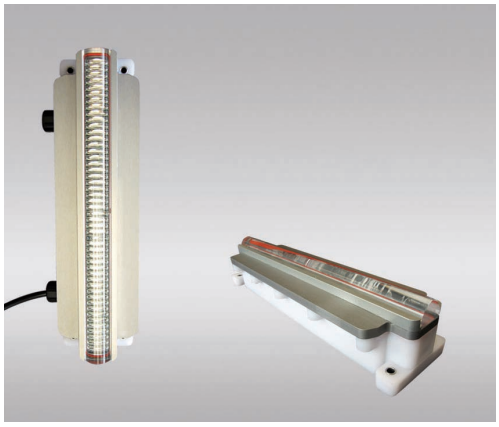
LED LINEAR LEAD LIGHT
VEGA VLL-43

Up to 11.1NM @ 0.74T

Vega

The VLL-43 includes an acrylic lens to capture and project the light from the high-powered LEDs. The LEDs are precisely graded and placed to produce a light beam with minimum variation in intensity.

- Vertical divergence: 30°
- Horizontal divergence: 8.5° at 50% and 15° at 10% of the peak intensity
- It is possible to use multiple units to achieve the required range
- Easy programming with TVIR programmer
- Colours meet IALA chromacity requirements
- Automatic Schmidt-Clausen intensity correction
- Up to 15 effective intensity settings
- Programmable flash characters: 246 + 1 custom
- 20 factory set custom characters
- Separate intensity settings for day and night.
- 9 night/day transition settings



Options

- GPS sync system using the Vega VSU-29 unit
- Monitoring system with Mini VegaWeb unit or using the alarm/monitor connector

Colour	Red	Green	White	Yellow	Blue
Max Effective Intensity (Cd)	1390	2360	2360	959	496
Range (NM)	10	11.1	11.1	9.3	8

Housing	Anodised marine grade aluminium heatsink & high impact ASA plastic
Lens	Optical grade acrylic
Weight	1.3kg
Mounting	4 holes on Ø6mm
Design life	10 years

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RANGE LIGHTS
VEGA VRL-74

Day range > 5NM @ 0.74T
Night range > 19NM @ 0.74T

The VRL-74 has a single LED operating through a high power optical grade acrylic lens. High intensity makes the VRL-74 lens suitable for use as a lead or range light. 1 lens with a white LED emits 80.000Cd. Several lenses are fitted on an aluminium structure to match end user requirements.

- Custom-made solution
- Low consumption
- Divergence: 3° on horizontal and vertical plane
- Divergence can be expanded using spreader lenses
- LEDs monitored for excess temperature
- Colours meet IALA chromacity requirements
- Easy programming with TVIR programmer
- Automatic Schmidt-Clausen intensity correction
- Multiple effective intensity settings
- Multiple day/night transition level settings
- Programmable flash characters: 246 + 1 custom
- 20 factory set custom characters
- Programmable low voltage cut out

3 types of VLR-74 are available

- **Mini Array**: standard product constiting of 1 to 6 lenses mounted on a vertical plane, for range or lead lights
- **Mini Tile**: larger form of Mini Array, for higher intensity range or lead lights
- **Mini Solo**: single lenses arrangement for specific applications (wider divergence or multicolor sector lights)

Options

- GPS sync system (internal or using the VSU-29 unit)
- Monitoring system with Mini VegaWeb unit or using the alarm/monitor connection

Maximum intensity for 1 standard lens

White	Red	Green	Yellow	Blue
Cd x1000	Cd x1000	Cd x1000	Cd x1000	Cd x1000
80	22.1	37.5	8.5	13.6

Heatsink / frame	DT 5008 marine grade aluminium
Lens	Machined cast acrylic
Shock / Vibration	40g in 3 axes / 2g
Design life	12 years

Mini Array

Mini Tile

Mini Solo

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RANGE LIGHTS
VEGA VRL-91

Day range > 10NM @ 0.74T
Night range > 30NM @ 0.74T

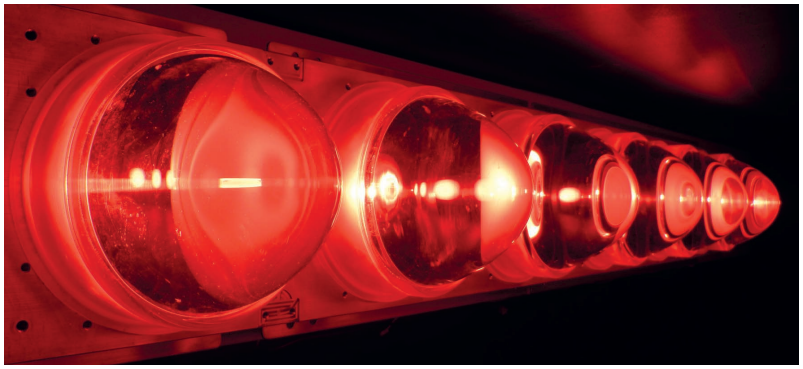
Vega

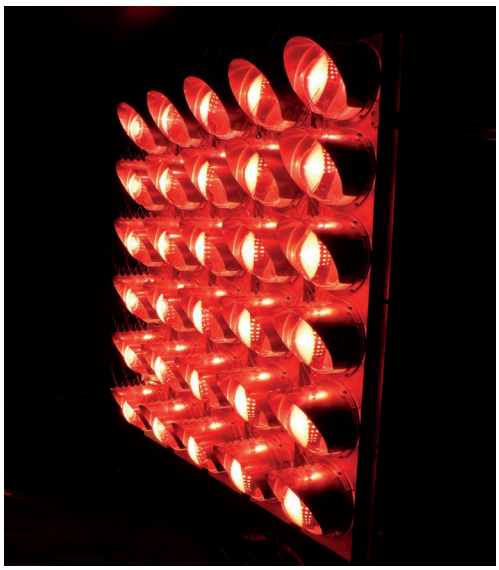
The VRL-91 is intended for applications requiring very high intensity. One single white lens produces an intensity of 400.000 candela. Multiple light sources are used to provide the necessary range and horizontal divergence.

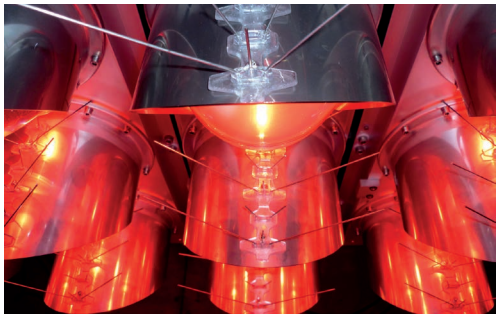
- Custom-made solution
- Vertical divergence of 3° at 50% of the peak intensity level
- Horizontal divergence depends on configuration (minimum is 3°)
- The lenses are mounted on a large heat sink to control the operating temperatures of the LEDs
- Multiple arrays can be mounted parallel to each other for increased intensity or horizontal divergence
- Spreader lens available to increase the horizontal divergence and for lower range applications
- Colours meet IALA chromacity requirements
- Easy programming (TVIR programmer, IRDA or RS232 data ports)
- Automatic Schmidt-Clausen intensity correction
- Mutliple effective intensity settings
- Multiple day/night transition level settings
- Programmable flash characters: 246 + 1 custom

Options

- GPS sync system using the VSU-29 unit
- Monitoring system with Mini VegaWeb unit, data ports RS232 or RS485, or using the alarm/monitor connection







Heatsink	DT 5008 marine grade aluminium
Lenses	Machined cast acrylic
Shock / Vibration	10g in 3 axes / 2g
Mounting	Mounts on vertical surface
Design life	12 years

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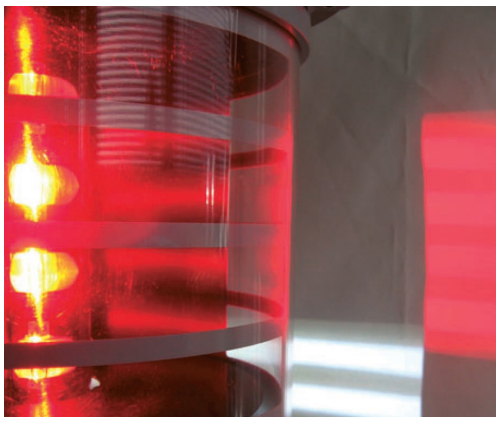
LED SECTOR LIGHTS
VEGA VSL-73

All around LED sector light
4 to 12NM @ 0.74T

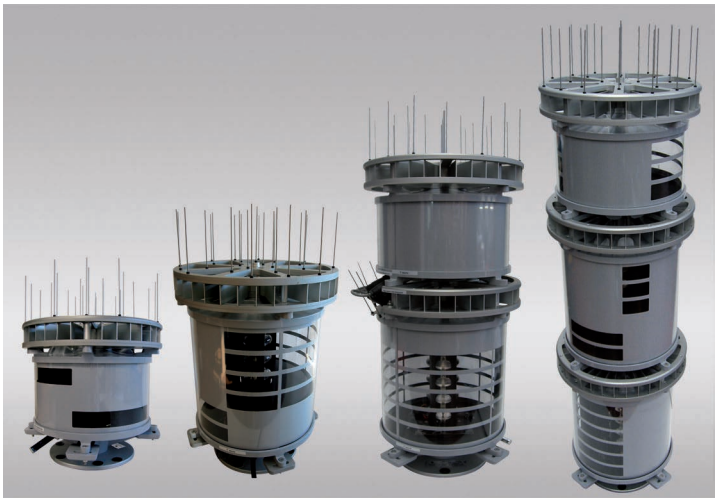
The VSL-73 provides a LED alternative for shadow casting sector lights using incandescent lamps. Each VSL-73 is customized for specific applications, depending on required range, colours and angles.

- Vertical divergence: 5° to the 50% intensity level
- Half to 3 full units to provide a wide scope of ranges
- Sector angles can be set from 2 to 360°
- Angle of uncertainty better than 0.5° colour to colour, and better than 1° at sector edge
- To maximize energy efficiency only the LEDs required for the sectoring are used. This reduces the cost for any solar powered applications.
- Colours meet IALA chromacity requirements
- Easy programming (TVIR programmer or IRDA)
- Automatic Schmidt-Clausen intensity correction
- Multiple effective intensity settings
- Day/night transition level settings
- Programmable flash characters: 246 + 1 custom



Options

- GPS sync system using the VSU-29 unit
- Monitoring system with Mini VegaWeb unit, data ports RS232 or RS485, or using the alarm/monitor connection



Outer cylinder	Acrylic
Lenses	Machined cast acrylic
Metal parts	DT 5008 Marine Grade Aluminium
Watertightness	IP 67 (suitable for outside use)
Weight	15.7kg (half unit) to 44kg (3 units)
Mounting	3 or 4 holes on 200mm PCD
Design life	12 years

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LED SECTOR LIGHTS
VEGA VLS-46

LED sector projector
Up to 12NM @ 0.74T

Vega

The VLS-46 is a high efficient LED sector light, with a very low consumption. It can be easily solar powered.

- Composed of several 5° or 10° projectors, to match end user requirements (angle, intensity)
- Accurate horizontal beam can be set on site
- Vertical divergence: 3° for 5° projector
- Vertical divergence: 6° for 10° projector
- Can handle various navigation tasks
- The electronic controller allows each projector to operate independently or to work together with a master projector
- Easy programming with TVIR programmer
- Colours in accordance with IALA recommendations
- Automatic Schmidt-Clausen intensity correction
- 246 flash characters and 1 custom character
- 20 factory set custom characters
- Separate day and night intensity settings.
- Up to 15 intensity level settings for both day and night.

Options

- GPS sync system (internal or using the VSU-29 unit)
- Monitoring system with VegaWeb

Maximum effective intensity & night range @ 0.74T			
Model:	Red	Green	White
5°	4520Cd 12.5NM	4750Cd 12.6NM	5350Cd 12.9NM
10°	760Cd 8.8NM	680Cd 8.6NM	970Cd 9.3NM

Projector / Base	Marine grade aluminium
Lens	Acrylic and glass
Watertightness	IP 67
Weight	Single projector: 5° 1.6kg / 10° 1.3kg
Mounting	Aluminium plate interface
Design life	10 years

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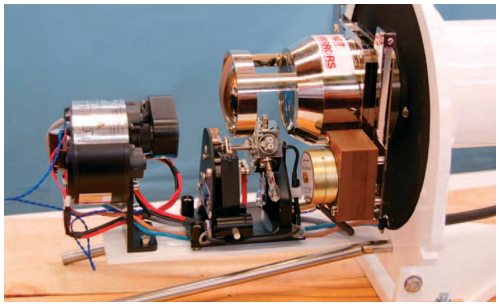
PRECISION SECTOR LIGHTS
VEGA PEL-3

Up to 19NM @ 0.74T

Vega

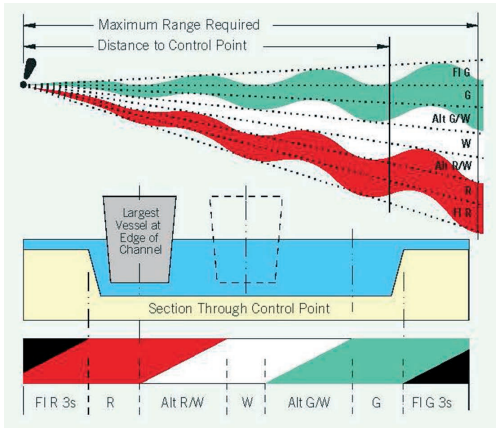
The PEL-3 is a precision sector light which shows a different colour when viewed from different directions. The colour of the light provides directional information to the mariner. It is used in situations where extreme accuracy is required, or where the mounting of a leading light is nearly impossible.

- Great configuration flexibility to match end user requirements
- Wide choice of subtenses, individual sector angles, lamp types and sizes, flash characters and operating modes
- Designed for use in rugged marine environments without further protection
- Energy efficient and suitable for solar power
- Uniform intensity from one side of the beam to the other
- Delivered fully tested and ready to operate
- Can be interfaced to remote switching and monitoring equipment
- Design life: 20 years



Options

- Oscillating boundary system
- Anti-reflection coatings



Subtense of light	3.5°	5°	7°	10°	15°	20°
Vertical divergence	2.0°	3.0°	3.4°	4.3°	5.0°	5.6°
Boundary resolution	<1.0'	<1.0'	<2.0'	<2.0'	<3.0'	<3.0'
Sector accuracy	<1.0'	<1.0'	<2.0'	<2.0'	<3.0'	<3.0'
Overall length (mm)	2002	1611	1263	993	789	710
Weight (kg)	48	38	31	33	34	34

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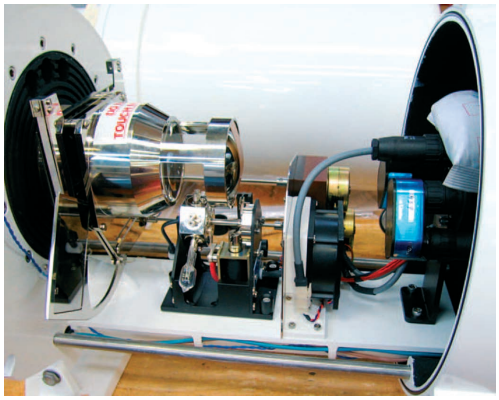
PRECISION SECTOR LIGHTS
VEGA PEL-6

Up to 25NM @ 0.74T

Vega

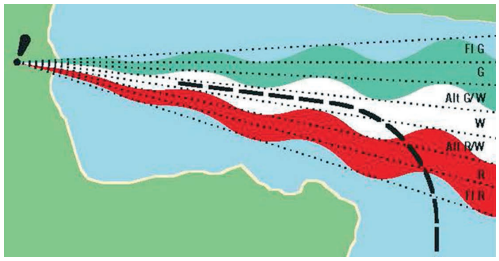
The PEL-6 is a precision sector light which shows a different colour when viewed from different directions. The colour of the light provides directional information to the mariner. It is used in situations where extreme accuracy is required, or where the mounting of a leading light is nearly impossible.

- Great configuration flexibility to match end user requirements
- Wide choice of subtenses, individual sector angles, lamp types and sizes, flash characters and operating modes
- Up to 6 nautical miles range in daylight
- Over 21 nautical miles range at night in coloured sectors, up to 25NM in white sector
- Designed for use in rugged marine environments without further protection
- Automatic intensity reduction at night
- Colour integrity
- Energy efficient and suitable for solar power
- Uniform intensity from one side of the beam to the other
- Delivered fully tested and ready to operate
- Can be interfaced to remote switching and monitoring equipment
- Design life: 20 years



Options

- Oscillating boundary system
- Anti-reflection coatings



Subtense of light	3.5°	5°	7°	10°	15°	20°
Vertical divergence	2.1°	3.0°	3.9°	4.3°	5.0°	5.6°
Boundary resolution	<1.0'	<1.0'	<1.0'	<1.0'	<1.0'	<1.0'
Sector accuracy	<1.0'	<1.0'	<1.0'	<1.0'	<1.0'	<1.0'
Overall length (mm)	1929	1893	1288	1209	975	872
Weight (kg)	83	82	64	63	59	58

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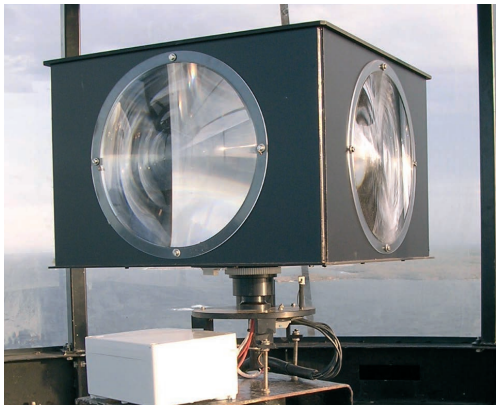
ROTATING BEACON
GFT-200

Up to 25NM @ 0.74T

The GFT-200 is a revolving lantern intended for long range beaconing. Its characteristics make this lantern ideal for new lighthouses and for the refurbishment of existing equipment.

- Halogen or metal halide lamps
- Can be easily solar powered
- Can be equipped with up to 6 lenses to provide a wide range of characters
- Revolving pedestal in aluminium
- High precision of the revolving system
- Available in single or dual version (secondary lantern)
- Can be installed inside a lighthouse lantern or outdoor with an aluminium envelope



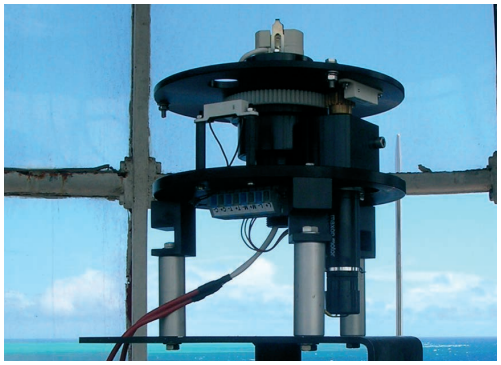
Single version without envelope

Dual version with envelope

Options

- Rotating Beacon Control Unit (please refer to RBCU datasheet)
- Monitoring system with VegaWeb
- Halogen model available with 6-position lamp changer

Lens	Moulded type Fresnel facet
Watertightness	IP 65
Weight	40kg for single version
Engine power supply	12V / 24V
Lamp supply	12V / 24VDC or 220V 50Hz
Lamp type	Halogen (HL) / Metal Halide (MH)
Engine consumption	< 1A
Rotating speed	Adjustable from 0.5 to 10 rpm
Operating temperatures	– 10° to + 60°
Design life	> 10 years



Revolving pedestal
with DC motor

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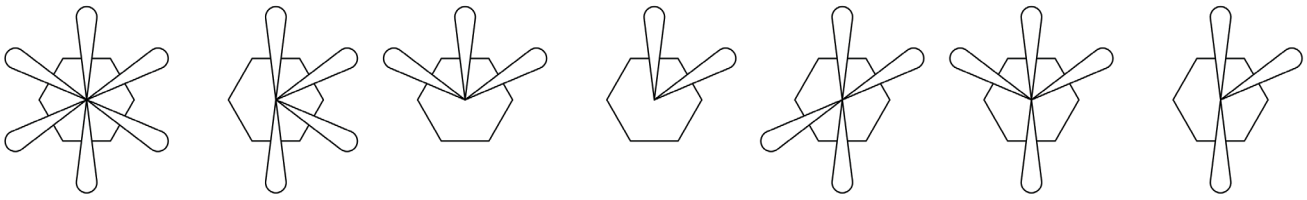
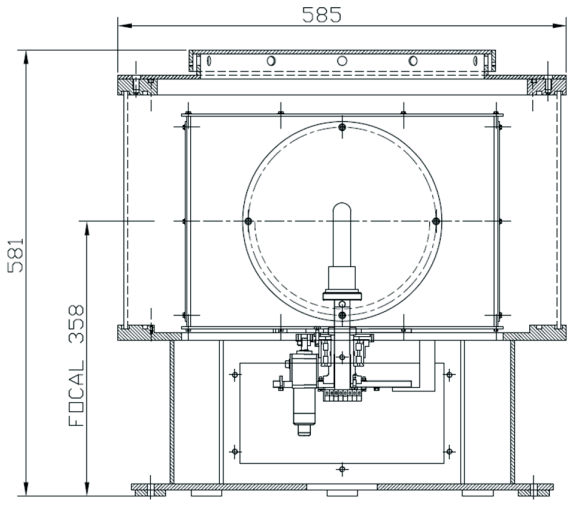
Effective intensity and luminous range

Lamp size	Divergence				Fixed Intensity in axis (Cd)	Effective intensity (Cd) in white and range (NM @ 0.74T)					
	Horizontal		Vertical			120s 0.5 rpm	60s 1 rpm	30s 2 rpm	20s 3 rpm	15s 4 rpm	10s 6 rpm
	50%	10%	50%	10%							
20W HL, 12V	0.4°	0.9°	0.8°	1.2°	188,495	78 464 19.1	49 544 18.1	28 520 16.7	20 023 15.9	15 427 15.2	10 573 14.4
90W HL, 12V	0.5°	0.9°	1.2°	1.8°	513,131	250 132 22 1	165 373 21.1	98 570 19.7	70 209 18.9	54 222 18.3	37 682 17.3
35W MH, 220V	1.4°	1.8°	0.5°	1.2°	527,934	366 204 23.1	280 327 22.4	190 827 21.4	144 646 20.6	116 461 20.1	83 803 19.3
70W MH, 220V	1.4°	2.0°	0.6°	1.4°	992,644	693 122 24.8	532 458 24.1	363 801 23.1	276 287 22.3	222 712 21.7	160 476 20.9
150W MH, 220V	2°	2.7°	0.7°	1.6°	1,190,000	917 330 25.4	746 322 24.9	543 634 24.1	427 526 23.4	352 285 22.9	260 570 22.2



Flash characters with a 6-lens carousel



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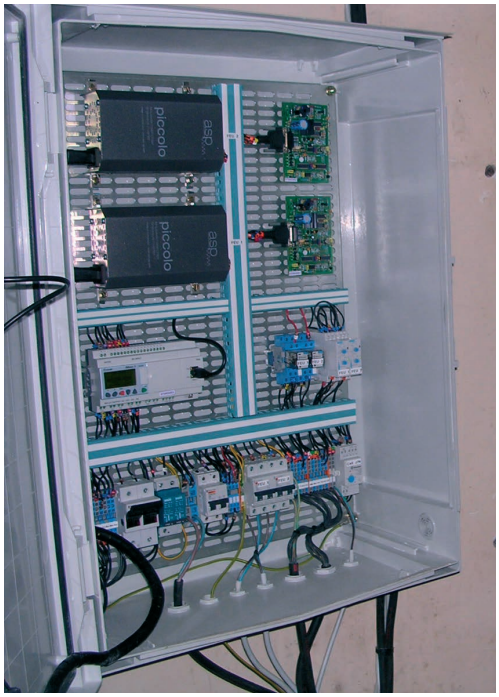
ROTATING BEACON CONTROL UNIT

RBCU

GISMAN Rotating Beacon Control Unit is an advanced system which ensures full operation control and the detection of possible defects of GFT-200 rotating beacon.

- Integrates an industrial programmable automate
- Can store events and operation time
- Can control 2 rotating beacons in the same time
- Digital display gives access to direct functions (automatic test of lanterns, removal of alarms...)
- Equipped with an absorber of overcurrent and emergency stop button
- Available functions:
  - State reports of the material (lamps & motors)
  - Reports for time of use (lamps & motors)
  - Voltage measure of the buffer battery
  - Display of received emergency calls



Options

- Can be linked to a communication module (radio, GSM, AIS) to send information and/or emergency messages

Watertightness	IP65
Power voltage	21.5 to 30Vcc
Number of controlled motors	2 (main & secondary lantern)
Motor voltage	24Vcc
Number of controlled lamps	2 (main & secondary lantern)
Lamp voltage	220Vac, 24Vcc, 12Vcc
Operating temperature	-40° to +55°C
Weight	28kg

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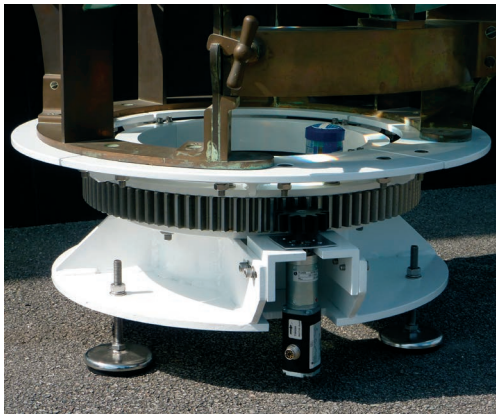
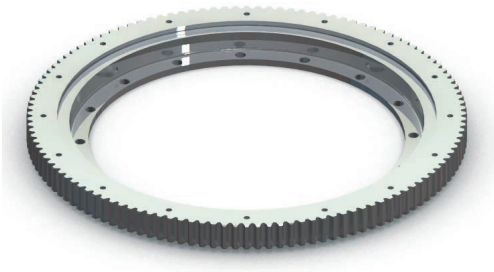
REVOLVING PEDESTAL

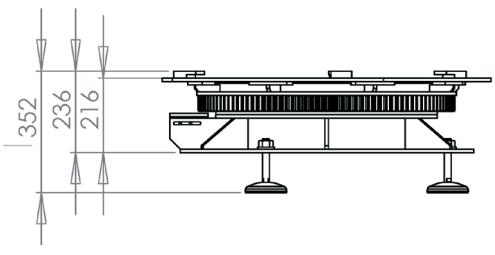
Mercury free revolving pedestal solution

GISMAN revolving pedestal is the ideal solution for lighthouse rehabilitation, where it is recommended to keep the historical lens without mercury bath.

- Custom sized product to fit existing lens dimensions and weight
- ercury free solution
- Ball-bearing system
- Designed to suit lens up to 2500kg
- Structure in painted steel
- Equipped with a DC electronic brushless motor (power supply from 20 to 30Vcc)
- Adjustable rotating speed from 1 to 6 rpm with less than 1% precision
- Equipped with a greasing device
- Anti-vibration pads for seismic zone (in option)







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Lantern house

Modular lantern house

Based on a modular concept, the lantern house designed by GISMAN can be easily assembled, even in isolated sites, without substantial logistical means.

- Lantern house composed of support wall, glazed cylinder, dome and ventilation cap
- Glazed cylinder reinforced with straight moutings
- Lantern house ventilated with rain protected air admissions located on the support wall and dome
- Can be easily fixed on all types of supports
- Designed to withstand tropical environment, seismic sites and winds superior to 200km/h

Options

- Weathervane with cardinal points
- Lightning protection
- Access ladder to the dome
- Access door (depends on support wall height)
- Coloured filters for flashing lights

Metallic parts	Aluminium, galvanized or stainless steel
Glazed parts	PMMA or shapeliness glass
Watertightness	IP 65
Corrosion protection	Marine Paint RAL9005
Inner diameter	up to 3.5m
Support wall height	up to 1m
Glass height	up to 2m
Glass thickness	4 to 6mm
Weight (in stainless steel)	470kg
Weight (in aluminium)	195kg

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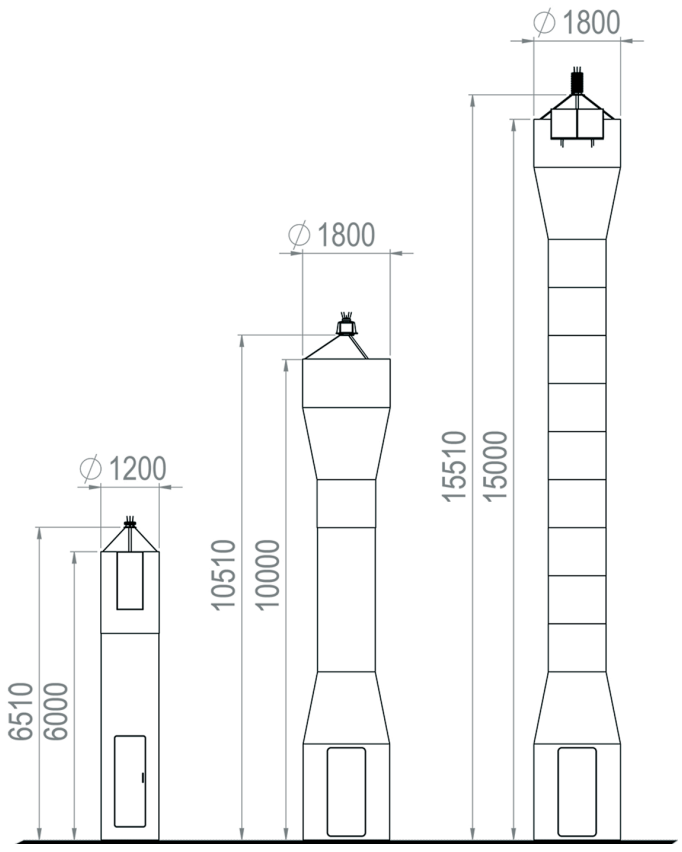
GRP tower

The GRP tower is made of modular elements easy to transport and to assemble, without substantial lifting means, even on the most inaccessible sites.

- Made of reinforced polyester resin with fiberglas
- Lower element for housing light accessories equipment
- One or several intermediary elements according to the required focal plane
- Upper element equipped with a working platform
- Internal ladder and manhole to the platform
- Rugged, light, easy to install and maintain
- Solar module support available in option

Height	6 to 15m
Maximum permanent load at the top of the tower	300kg
Wind resistance	up to 200km/h
Wave resistance	up to 2m
Minimum thickness	6mm
Weight	840 to 1300kg
Protection	Isophthalic gelcoat



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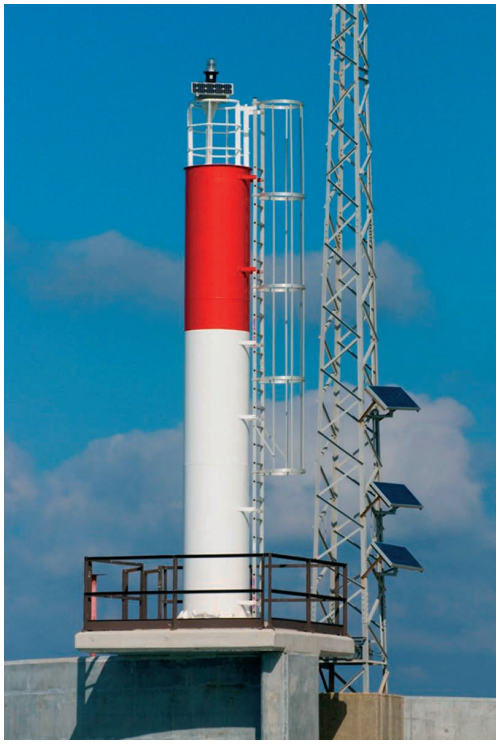
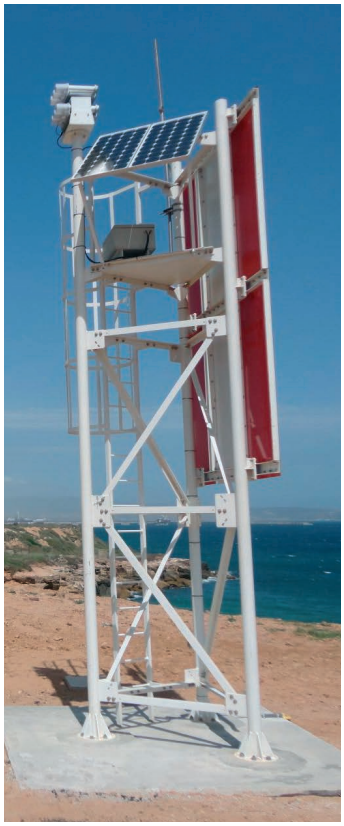
Metallic towers and masts

GISMAN designs, supplies and installs a wide range of metallic structures in aluminium, painted steel, galvanized steel or stainless steel.

- Custom-made solutions, according to customer requirements
- Protection against marine corrosion
- Finishing colour in accordance with IALA recommendations
- Calculation notes approved by certified company (upon request)





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Polyethylene top mark

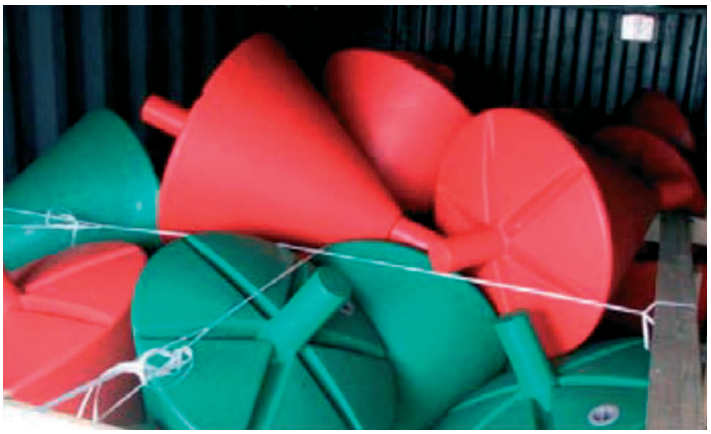
Protonna

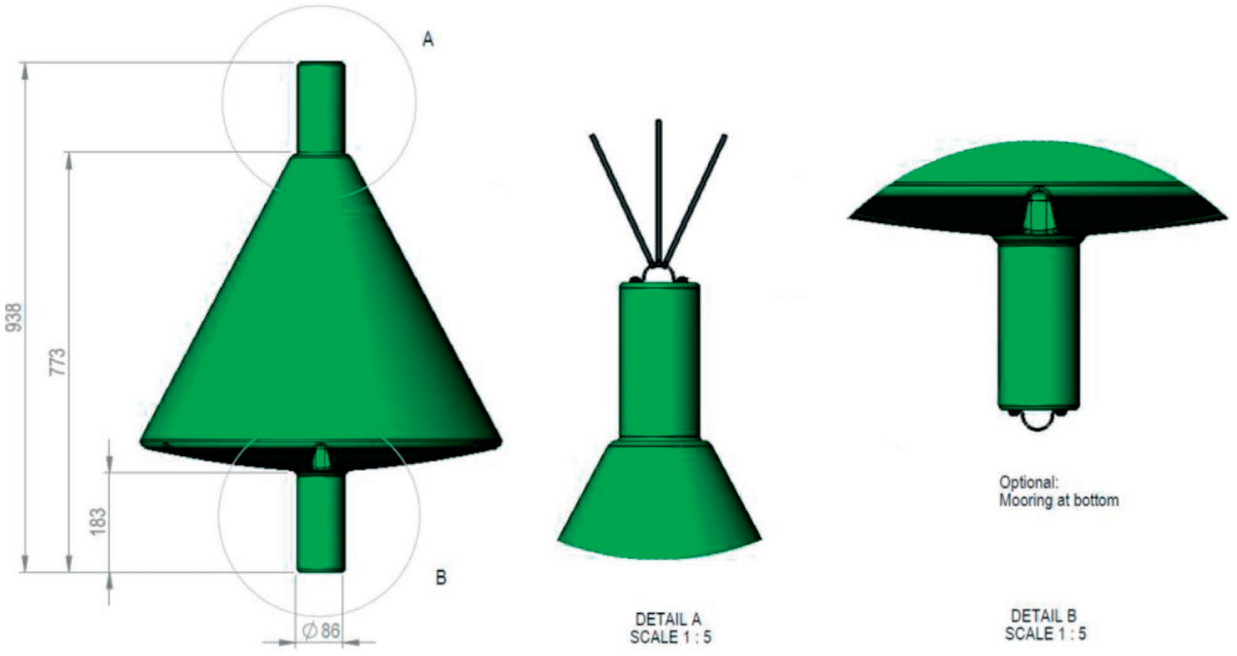
The H-560 polyethylene top mark is typically used on fixed structures.

- On land based positions, the top mark can be fitted in a pole and secured by a wire
- In case the pole is knocked down at high water levels, the top mark will float above the pole position

Options

- High quality 300mm radar reflector fitted inside the top mark





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GPS SYNC SYSTEM
VEGA VSU-29

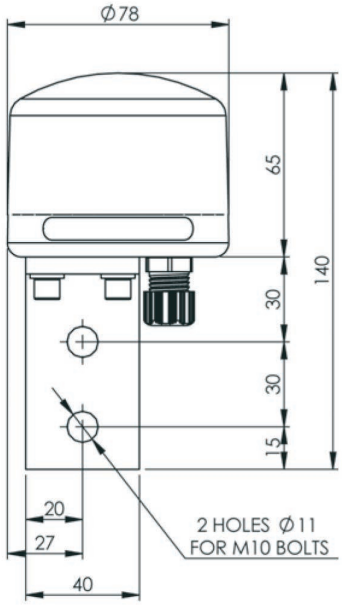
Standalone GPS module

The VSU-29 GPS Sync Unit uses the GPS time signal to synchronise the operation of navigation lights.

- 2 sync wires provided: 1 positive and 1 negative transition. This allows the VSU-29 to be used with most brands of navigation lights.
- Easy programming with TVIR programmer
- 246 IALA flash characters and up to 20 factory set custom characters (fixed character mode only)
- No positioning information is generated from the GPS unit

- Can be operated in three ways:
  - Flash Character where the same flash character is programmed in the VSU-29 as is programmed in the light
  - Flash Character Generator where the VSU-29 acts as a flash generator for a light
  - Fixed Period where pulses are sent at a fixed period (for lights sinchronization with different flash periods)

Material	PVC and acrylic
Watertightness	IP 68
Input voltage	12V (10-20VDC)
Weight	355g



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MONITORING SYSTEM
VEGAWEB

Mini outstation

The VegaWeb provides a monitoring solution for Aids to Navigation equipment. System access is achieved using an Internet Browser. Communication uses direct Internet communication over a cellular network.

- By avoiding the need for purchasing computers to host the system and communication networks, VegaWeb monitoring is economical even if only one beacon or light is being monitored.
- Automatic alarming by SMS or email
- Access on a computer or mobile WAP from any place covered by the Internet
- Compatible with VEGA equipment and Aids to Navigation lights from other manufacturers
- Monitoring of voltage and current, beacon on, flash character, day time/night time, temperature, communication
- Operates on the GSM/GPRS and CDMA cellular networks
- Alarms have 3 levels of notification (maintenance, warning and critical)
- Frequency of communication programmed by the user, to provide control on communication costs
- Mini VegaWeb is intended for use with beacons that do not need the interface or capability of the larger unit

Options

- GPS for position information and providing a synchronising pulse
- Accelerometer for impact detection
- Current transducer

Enclosure	High impact acrylic / PVC, sealed to IP 67
Electrical connection	4 & 12 cores
Power requirements	Supply voltage: 12 or 24VDC
Internal sensors	Light sensor, silicon light sensor (human eye response), temperature
Data	RS232 port for AIS (upon request)
Communications	Internal cellular modem, Wavecom GPRS Q24Plus or CDMA Q2438, internal antenna

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MONITORING SYSTEM VEGAWEB

Large outstation

Vega

The Large VegaWeb provides a monitoring solution for Aids to Navigation equipment. System access is achieved using an Internet Browser. Communication uses direct Internet communication over a cellular network or the Orbcom Satellite network.

- By avoiding the need for purchasing computers to host the system and communication networks, VegaWeb monitoring is economical even if only one beacon or light is being monitored.
- Automatic alarming by SMS or email
- Access on a computer or mobile WAP from any place covered by the Internet
- Compatible with VEGA equipment and Aids to Navigation lights from other manufacturers
- Large VegaWeb is intended for monitoring devices that need a higher amount of interface such as lighthouses and sector lights.
- Monitoring of voltage and current, beacon on, flash character, day time/night time, temperature, communication
- Operates on the GSM/GPRS, CDMA cellular networks and Orbcom satellite system
- Alarms have 3 levels of notification (maintenance, warning and critical)
- Frequency of communication programmed by the user, to provide control on communication costs

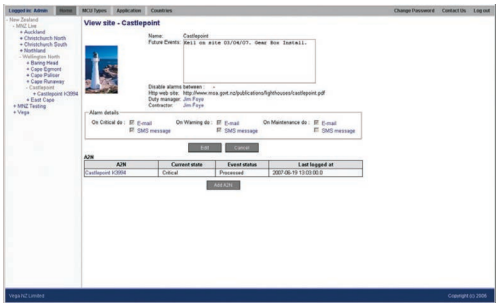
Large VegaWeb

Current Sensor

Options

- GPS for position information and providing a synchronising pulse
- Accelerometer for impact detection
- Current transducer

Enclosure	High impact PVC, sealed to IP 56
Electrical connection	4-PIN CPC with 1 meter cable provided
Power requirements	Supply voltage 12 or 24VDC
Internal sensors	Light sensor, temperature
Data	RS232 port for external device (AIS unit), RS485
Communications	Internal GPRS, CDMA or Satellite modem. Wavecom GPRS Q24Plus, Wavecom CDMA Q2438. Stellar Satellite DS100



VegaWeb user interface

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Racon Hekleo-SX

Hekleo-SX is a frequency agile Racon operating on both S and X bands. This Aids to Navigation equipment provides the indispensable service to the mariners in all weather conditions.

- Answers all active radars in the vicinity with a user programmed morse code which identify its location by appearing on the radar display
- Enters into a quiescent periode where only the waking circuits are on duty
- Programmable answer length
- Fitted with a standard common user interface which can use without any dedicated terminal
- A standard laptop can be connected to the user port to check and reprogram the Racon
- Fitted with a built-in-test which permanently scans the system
- Automatic calibration performed periodically
- Low consumption performances
- Lightweight equipment, easy to install and maintain

Design features

FREQUENCY	X band (9300-9500 MHz) / S band (2900-3100 MHz)
RECEPTION Detected pulse widths Receiver sensitivity Response delay	S and X bands 50 to 2000ns -40dBm, X band / -35dBm, S band (adjustable) 670ns and < 700ns typical
EMISSION Emitted power Response encoding Response duration	S and X bands 1W typical Programmable: 13 letters of morse code, compliant with IMO A530 (13) Selected by user according to interrogation pulse width (6 to 60 µsec)
POWER SUPPLY Voltage Standby / listening current Operating current	10 to 32 V < 20mA / <100 mA (12Vdc with 2 bands operation selected) 700 mA max
COMMUNICATIONS User port Logical outputs Logical input	RS 232 serial link for programming and testing 3 dry contacts: default X, default S, default power supply Inhibition for local radars
ANTENNAS Polarisation Diagram	Horiz. and vertical in S band / Horiz. in X band Horizontal: ± 2dB / 360° / Vertical: ± 3dB / ± 15°C
FUNCTIONNALITY	Response to several interlaced radars; Suppression of sidelobes interrogations (SLS) in X and S bands; Programming of active and idle periods. Cycle time programmable : active from 0 to 60 sec. and idle from 0 to 60 sec. Quiescent cycle when no interrogation.
ENVIRONMENTAL CHARACTERISTICS	Operation temperature (2 versions): -20°C at +60°C and -40°C at +60°C Water and dust protection: IP 67 Accessories: programming cable, power supply cable, user's manual in english
MECHANICAL CHARATERISTICS	Dimensions: diameter 28cm, height 74cm max. / Weight: 9kg Material: polyethylene body anti UV

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AIS AtoN Transponder Type 1 & 3

Kan AtoN AIS AtoN Transponder mcmurdo systems for professionals

The Kanaton AIS transponder is an aid to navigation AIS station, optimised for installation on floating or fixed Aids to navigation. It enables radar screens on boats, navigators and authorities, to obtain reliable data in any weather conditions regarding the identification of an AtoN, as well as AtoN status monitoring, real time warnings when buoys move off position, AtoN collision risk reduction, and the creation of virtual and synthetic aids to navigation.

- Very low power consumption, compatible with solar powered installation
- Compact, lightweigth and watertight casing, easy to install and configure using a PC on a series or USB port
- Complies with standards: IEC 62320-2, UN 60945, ITU-R M1371, IALA A-126
- Enables the transmission of meteorological and hydrological data
- Offshore structure marking and collision prevention
- Navigation study and analysis tool
- Economic optimisation tool for certain navigation routes

Main features

- KanAtoN type 1 (FATDMA) : transmitter in the 160MHz band, configured according to the frequency dedicated locally to AtoN
- KanAtoN type 3 (RATDMA) : transmitter - receiver, completely autonomous; without intervention, it can select the time slot in which it will transmit

KanAtoN AIS enables to send the following messages:

- **Message 21 - Identification of the Aid to Navigation** : MMSI identification, type, name, position, longitude, latitude, dimensions, off position indicator (off-position buoy), status, signalling light on off indicators
- **Message 8 - Meteorological and hydrological messages météorologiques et hydrologiques** : enables a network of sensors to be deployed to measure various parameters along the coast (suitable for the main sensors)
- **Message 6 - Monitoring of the AtoN** : status message (battery charge, lights, solar panel); possibility to programme up to 4 virtual or synthetic AtoNs
- **Message 12 - Relaying of safety messages transmitted by a SART (type 3 only)**
- **Message 14 - Transmission of safety messages (type 3 only)** : automatic transmission when a buoy moves off position or a light is faulty
- **Messages 7, 13 and 25: type 3 only**

GISMAN is the authorized distributor for McMurdo KanAtoN AIS products in many countries. For further details, please contact us.

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Technical specifications

Operating temperature	-20 to -60° C
Polarity inversion protection	yes
Operating voltage	10 to 36V
Operating current	< 1mA in sleep / < 50mA in operation / < 2.5A in transmission
Consumption	(message 21 every 3min) type 1 : < 0.20Ah / day (message 21 every 3min) type 3 : < 0.70Ah / day
GPS receiver	GPS L1 C/A-code, SPS 12 channels
Acquisition time	Cold start: 36s / Hot start: 4s Sensitivity in acquisition (cold) -141dBm / (hot) -149dBm Sensitivity in tracking: -156dBm Supports WAAS/EGNOS
VHF antenna connector	N female
Power connector	Amphenol C16-1
AIS frequency	AIS 1: 161.975 MHz / AIS 2 162.025 MHz
Power	2W or 12.5W
Transmission mode	FATDMA
Inputs / outputs	4 inputs insulated by optocouplers (to read data relating to light faults, lights on and Racon fault information)
Characteristics	Insulation voltage: 5300Vrms Protection voltage: 16V 600W for 1ms Operating voltage: 16V to 3,3V
Communication ports	TX and RX in RS232 for configuration and reception of technical data RX in RS422 for reception of meteorological data
Power on indicator	By tri-colour LED (green/yellow/red)
Dimensions	Diameter: 165mm / Height: 135mm
Weight	1.1kg
Casing material	ASA plastic
Casing colour	White
Watertightness	IP 67
Accessories	1 VHF antenna 2x 7 strand shielded cables fitted with Amphenol C16-1 connector, length 5 m 1x RG213 coaxial cable fitted with an N male connector

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Luminous & geographical range
Atmospheric transmissivity

The tables give ranges for atmospheric transmissivity of 74% (0.74T) which corresponds to clear weather conditions and is customarily used for estimating ranges for the North Atlantic and similar areas. The night-time table also gives ranges for 85% (0.85T) which corresponds to very clear conditions and is used for tropical areas.

Night range in NM assuming no background light at 0.74T and 0.85T

NM	Cd 0.74T	Cd 0.85T	NM	Cd 0.74T	Cd 0.85T	NM	Cd 0.74T	Cd 0.85T	NM	Cd 0.74T	Cd 0.85T
0.5	0.2	0.2	3.1	16.8	10.9	5.7	124	56	10.6	1 880	432
0.6	0.3	0.3	3.2	18.4	11.8	5.8	132	59	10.8	2 070	463
0.7	0.4	0.4	3.3	20.2	12.8	5.9	141	62	11.0	2 280	497
0.8	0.6	0.5	3.4	22.1	13.8	6.0	151	66	11.2	2 510	532
0.9	0.7	0.6	3.5	24.1	14.9	6.2	171	72	11.4	2 760	569
1.0	0.9	0.8	3.6	26.3	16.0	6.4	193	80	11.6	3 040	609
1.1	1.2	1.0	3.7	28.6	17.2	6.6	218	87	11.8	3 340	651
1.2	1.4	1.2	3.8	31.1	18.4	6.8	246	96	12.0	3 670	695
1.3	1.7	1.4	3.9	33.8	19.7	7.0	277	105	12.5	4 630	818
1.4	2.1	1.7	4.0	37	21	7.2	311	115	13.0	5 820	960
1.5	2.4	2.0	4.1	40	22	7.4	349	125	13.5	7 290	1 120
1.6	2.8	2.3	4.2	43	24	7.6	391	136	14.0	9 120	1 310
1.7	3.3	2.6	4.3	46	26	7.8	438	148	14.5	11 400	1 520
1.8	3.8	3.0	4.4	50	27	8.0	489	161	15.0	14 100	1 770
1.9	4.4	3.4	4.5	54	29	8.2	545	175	15.5	17 600	2 050
2.0	5.0	3.8	4.6	58	31	8.4	608	190	16.0	21 700	2 370
2.1	5.7	4.3	4.7	62	33	8.6	677	206	16.5	26 900	2 730
2.2	6.4	4.8	4.8	67	35	8.8	753	222	17.0	33 200	3 150
2.3	7.3	5.3	4.9	72	37	9.0	836	240	17.5	40 900	3 620
2.4	8.1	5.8	5.0	77	39	9.2	928	259	18.0	50 300	4 150
2.5	9.1	6.4	5.1	83	41	9.4	1 030	280	19.0	75 700	5 440
2.6	10.2	7.1	5.2	89	43	9.6	1 104	301	20.0	113 000	7 090
2.7	11.3	7.8	5.3	95	46	9.8	1 260	324	22.0	250 000	11 900
2.8	12.5	8.5	5.4	102	48	10.0	1 390	349	24.0	544 000	19 600
2.9	13.8	9.3	5.5	109	51	10.2	1 540	375	26.0	117 0000	31 800
3.0	15.3	10.1	5.6	116	54	10.4	1 700	403	30.0	518 0000	81 000

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Day range in NM for 0.74t with background light intensity of 10,000 cd/m²

NM	Cd	NM	Cd	NM	Cd	NM	Cd	NM	Cd	NM	Cd
0.1	35	1.2	7 100	2.3	36 300	3.4	111 000	4.5	270 000	5.6	581 000
0.2	146	1.3	8 580	2.4	40 700	3.5	121 000	4.6	290 000	5.7	621 000
0.3	338	1.4	10 300	2.5	45 600	3.6	132 000	4.7	312 000	5.8	662 000
0.4	620	1.5	12 100	2.6	50 800	3.7	143 000	4.8	336 000	5.9	706 000
0.5	998	1.6	14 200	2.7	56 400	3.8	156 000	4.9	361 000	6.0	753 000
0.6	1 480	1.7	16 600	2.8	62 600	3.9	169 000	5.0	387 000		
0.7	2 080	1.8	19 100	2.9	69 200	4.0	183 000	5.1	415 000		
0.8	2 800	1.9	22 000	3.0	76 300	4.1	198 000	5.2	444 000		
0.9	3 650	2.0	25 100	3.1	83 900	4.2	215 000	5.3	476 000		
1.0	4 640	2.1	28 500	3.2	92 200	4.3	232 000	5.4	509 000		
1.1	5 790	2.2	32 200	3.3	101 000	4.4	250 000	5.5	544 000		

Atmospheric transmissivity

Some light from a beacon is always absorbed by the air it passes through. The exact amount depends on the atmospheric conditions at the time. Atmospheric transmissivity is expressed as the proportion of light remaining after travelling one nautical mile. 0.74T corresponds to conditions in which a beam of light retains 74% of its intensity after one nautical mile.

T	Visibility (in NM)	Weather
0.10	1.3	haze
0.20	1.8	-
0.30	2.5	light haze
0.40	3.2	-
0.50	4.3	-
0.60	6.0	clear
0.70	8.5	-
0.74	10.0	very clear
0.80	14.0	-
0.85	20.0	-
0.90	29.0	extremely clear
1.00	unlimited	-

Geographical range

To be seen at a long range a light needs to be above the observer's horizon.

Geographical range (in NM)					
Height of light above MSL	Height of observer above Mean Sea Level				
	0m	5m	8m	11m	15m
3m	3.3	7.6	8.8	9.7	10.8
5m	4.3	8.6	9.8	10.7	11.8
7m	5.1	9.4	10.5	11.5	12.6
10m	6.1	10.4	11.5	12.5	13.6
15m	7.5	11.8	12.9	13.8	14.9
20m	8.6	12.9	14.1	15.0	16.1
30m	10.5	14.9	16.0	16.9	18.0
40m	12.2	16.5	17.6	18.6	19.6
50m	13.6	17.9	19.1	20.0	21.1
60m	14.9	19.2	20.4	21.3	22.4
70m	16.1	20.4	21.6	22.5	23.6
80m	17.2	21.5	22.7	23.6	24.7
90m	18.3	22.6	23.7	24.7	25.7

LRQA
Business Assurance

CERTIFICATE OF APPROVAL

This is to certify that the Quality Management System of:

GISMAN
7 rue Louis Blériot - ZA Toul Garros
56400 AURAY, France

has been approved by Lloyd's Register Quality Assurance
to the following Quality Management System Standards:

ISO 9001:2008

The Quality Management System is applicable to:

Design, manufacture, supply and installation of marine and river navigational aids and data equipment. Provide associated services and equipment.

Approval
Certificate No: FQA 4002646

Original Approval: 10 October 2013

Current Certificate: 10 October 2013

Certificate Expiry: 09 October 2016

Issued by: Lloyd's Register Quality Assurance France SAS

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CERTIFICATION DE SYSTEMES DE MANAGEMENT
ACCREDITATION N°4-0003
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This document is subject to the provision on the reverse
1, boulevard Vivier Merle, 69443 Lyon cedex 03
This approval is carried out in accordance with the LRQA assessment and certification procedures and monitored by LRQA.
Macro Revision 13

IALA AISM

Gisman

Aids to Navigation

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